

SAFETY COMPLIANCE TESTING FOR FMVSS 121

Air Brake Systems

Vehicle: MY 2009 IC/RE PB305, 72-Passenger, Rear-Engine, (4X2) School Bus

IC Corporation

Report #: 121V-TRC-06-012

NHTSA #: C90900

TRC Inc. Test #: 20040769/8001

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Final Report

U.S. Department of Transportation

National Highway Traffic Safety Administration

Enforcement

Office of Vehicle Safety Compliance

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Washington, D.C. 20590

NOTICE

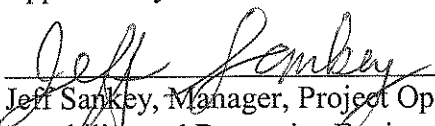
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16. ABSTRACT: Compliance tests were conducted on the subject 2009 IC/RE PB305, 72-Pass., Rear Engine (4X2) School Bus, NHTSA No. C90900, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-121V-05, for the determination of FMVSS 121 compliance. Test failures identified were as follows: None			
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SECTION 1.0

Purpose of Compliance Test

Purpose

Transportation Research Center Inc. (TRC Inc.) conducted this program for the National Highway Traffic Safety Administration (NHTSA). The purpose of this test was to determine if the subject vehicle, a 2009 IC/RE PB305, 72-Passenger, Rear Engine (4X2) School Bus, NHTSA No. C90900 meets the performance requirements of FMVSS 121, "Air Brake Systems."

Test Procedure

This test was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-121V-05. Data was obtained relative to FMVSS 121, "Air Brake Systems." Deviations from the procedure: the only tests performed under section 10.2 "Laboratory Tests" were 10.2 I. "Brake Actuation and Release Timing." Note that test 10.3 G "Parking Brake Chamber Application Pressure," though in a Road Test sequence, was performed at the time of the Brake Actuation and Release Timing. The test sequence was performed as follows:

1. Burnish
2. Brake Actuation and Release Timing/Parking Brake Chamber Appl. Press. GVWR
3. Service Brake Stops GVWR
4. Emergency Brake (Primary Reservoir Failure) Stops GVWR
5. Emergency Brake (Secondary Reservoir Failure) Stops GVWR
6. Emergency Brake (Primary Control Line Failure) Stops GVWR
7. Park Brake – Grade Holding
8. Stability and Control LLVW
9. Service Brake Stops LLVW
10. Emergency Brake (Primary Reservoir Failure)
11. Emergency Brake (Secondary Reservoir Failure)
12. Emergency Brake (Primary Control Line Failure)
13. Park Brake – Grade Holding
14. Final Inspection

The vehicle information is summarized in Section 2.0. The test data summary is located in Section 3.0, the test data is located in Section 4.0, and the instrumentation summary is located in Section 5.0. Appendix A contains the still photographic prints. Appendix B lists the test data in Report Generator format.

SECTION 2.0

Vehicle Information

Vehicle Information

The completed test vehicle is a 2009 IC/RE PB305, 72-Passenger, Rear Engine (4X2) School Bus, with a wheelbase of 222 inches, manufactured by IC Corporation, NHTSA No. C90900. The Gross Vehicle Weight Rating (GVWR) is 31,800 pounds and the test vehicle is equipped with a Bendix, 4S/4M anti-lock brake system.

SECTION 3.0

Test Data Summary

Test Data Summary

Table 1

Summary of Data for Laboratory Test “Application & Release Times”

Average Times in Seconds	Application Max. Allowable – 0.45 sec.		Release Max. Allowable – 0.55 sec.	
	Axle #1	Axle #2	Axle #1	Axle #2
Full System Operating	0.448	0.252	0.508	0.361
ABS Main Power Failed	0.456	0.251	0.539	0.337
ABS Wheel Sensor Failed (Open)	0.449	0.253	0.506	0.332
ABS Wheel Sensor Failed (Short)	0.448	0.250	0.505	0.334

The nominal park brake chamber pressures were 0.2 psi, 3 seconds after control valve actuated.

Table 2

Data Summary of the Stopping Distances

Distance in Feet (Corrected Dist.)	GVWR		LLVW		Maximum Allowable
	Minimum	Maximum	Minimum	Maximum	(ft.)
1.2 Service Brakes	207.1	226.2	167.0	173.5	GVWR – 310 LLVW – 335
Failed Primary Reservoir	221.5	230.2	180.8	189.4	GVWR – 613 LLVW – 613
Failed Secondary Reservoir	272.3	302.2	196.6	212.1	GVWR – 613 LLVW – 613
Failed Primary Control Line	252.3	278.2	206.8	210.5	GVWR – 613 LLVW – 613

The vehicle passed the Stability and Control Tests.

SECTION 4.0

Test Data

**TEST DATA
TABLE 3
VEHICLE INFORMATION SHEET - FMVSS 121**

Vehicle: 2009 IC/RE PB305, 72-Passenger, Rear Engine, (4x2) School Bus

Veh. Number: C90900

Test No.: 20040769/8001 Test Date(s): 06/02/08 to 07/30/08

Test Facility/Location: TRC/Transportation Research Center Inc., East Liberty, Ohio

Truck/Tractor/Bus Year, Make, and Model: 2009 IC/RE PB305, 72-Passenger, Rear Engine, (4X2) School Bus

Build Date: 04/08 VIN: 4DRBWAAN29A083456 Model No.: PB30500

Body (Serial) No.: 083456 Body Build Date: 04/23/08 Chassis No.: No Data

GVWR: 31,800 lbs. GAWRs: 12,000 lbs. – Steer; 19,800 lbs. – Drive

Engine Data: Type: (Diesel, gas, other) Diesel (Turbo)
6 Cylinders (Inline) Cu. In. 7.6 Liter 245 HP

Transmission: 5 Speed Manual X Automatic O.D.

Axle Drive Configuration: 4X2 Center of Gravity (in): 55 (Estimated)

Initial Odometer: 826 mi.

Wheelbase: Truck, (in): 222 Control Trailer, (in): NA

Retarder(s) Type(s): None Aerodynamic Treatments: Yes No X

BRAKES:

	Type ¹	Size	Make	Lining (Edge Code)
Axles:				
Steer #1	<u>Cam</u>	<u>16.5 x 5 in.</u>	<u>Meritor</u>	<u>MA212 FF</u>
Drive #2	<u>Cam</u>	<u>16.5 x 7 in.</u>	<u>Meritor</u>	<u>MA212 FF</u>

¹ Cam, disc, wedge, etc.

....Continued

BRAKE DRUM/ROTOR:

	Type ²	Make	Dust Shields Installed?
Axles:			
Steer #1	<u>Cast Drum</u>	<u>Gunite</u>	<u>Yes</u>
Drive #2	<u>Cast Drum</u>	<u>Gunite</u>	<u>Yes</u>

² Cast or composite drum, vented or non-vented rotor, etc.

ACTUATION DETAILS:

	AIR CHAMBERS		SLACK ADJUSTERS		
	Make	Type ³	Length or Wedge angle	Mfr.	Cam Rotation ⁴
Axles:					
Steer #1	<u>MGM</u>	<u>24L3</u>	<u>5.5 in.</u>	<u>ArvinMeritor</u>	<u>Same</u>
Drive #2	<u>MGM</u>	<u>30LP3/30</u>	<u>5.5 in.</u>	<u>ArvinMeritor</u>	<u>Same</u>

³ Size and diaphragm or piston

⁴ Same or opposite to forward wheel rotation

TIRES

	Pressure (psi)	Size	Make	Model	Static Loaded Radius Measured	Databook (Website)*
Axles:						
Steer #1	<u>105 psi</u>	<u>11R22.5</u>	<u>Hankook</u>	<u>AH12</u>	<u>20.4 in.</u>	<u>20.1 in.</u>
Drive #2	<u>105 psi</u>	<u>11R22.5</u>	<u>Hankook</u>	<u>AH12</u>	<u>20.5 in.</u>	<u>20.1 in.</u>

REMARKS: There were dual tires at each wheel end on the rear drive axle, only.

*Calculated from data presented on the tire manufacturer's website.

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ABS:

Mfr: Bendix

Model: M-32

Configuration: 4S/4M

FRONT SUSPENSION:

Type: Solid Axle/Leaf Spring

Make: Spicer

Model: I120

REAR (DRIVES) SUSPENSION:

Type: Solid Axle/Air Bag

Make: Spicer

Model: 190605

Rear Axle Spread, (in): NA

Overall Width (SAE J693): 96.86 in.

FIFTH WHEEL:

Fifth Wheel Height Relative to Ground (in): NA Fifth Wheel Position, (in)⁵: NA

⁵Relative to rear axle(s) centerline (in.): NA Load CG – Control Trailer (in.): NA

AIR SYSTEM:

Compressor Capacity (cfm): 13.2 (Bendix Tu-Flow 550)

Cut-out (psi): No Data

Cut-in (psi): No Data

Crack Pressure Ratings (psi)⁵:

1st Axle: No Data 2nd Axle: No Data Treadle Valve⁶: No Data

⁵ Relative to rear axle(s) centerline (include sketch if necessary)

⁶ Total crack pressures between treadle valve and brake chambers

Front Axle Limiting: No Data

Air Dryer: None

Air Compounding: No Data

Number of Brakes Controlled: Four Brake positions ABS controlled, (4S/4M).

....Continued

AIR TANK VOLUMES. (cu. in.):

Supply: No Data Primary: No Data Secondary: No Data
Auxiliary: No Data Isolated From Service? No Data

Note: One large/main tank internally divided into three sections. Second small tank appears to supplement Secondary system.

SPECIAL CONDITIONS:

None.

WEIGHTS (lbs):

	Empty	LLVW	Burnish	GVWR	GAWR
Axle:					
Steer #1	<u>5,520</u>	<u>6,150</u>	<u>12,000</u>	<u>12,000</u>	<u>12,000</u>
Drive #2	<u>14,090</u>	<u>13,990</u>	<u>19,790</u>	<u>19,790</u>	<u>19,800</u>
Total:	<u>19,610</u>	<u>20,140</u>	<u>31,790</u>	<u>31,790</u>	<u>31,800</u>

REMARKS:

Placard GVWR: 31,800 lbs.

**TEST DATA
TABLE 4
VERIFICATION OF REQUIRED EQUIPMENT**

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus Veh. No.: C90900
Date: 06-02-08 Driver: R. Heberling Technician: D. Bevis Odometer: 826 mi.

SERVICE BRAKES

YES

NO

All Wheels Equipped with Brakes

X

All Brakes Equipped with Automatic Brake Adjusters

X

Brake Adjustment Indicators are visible from a location adjacent to or beneath the vehicle

X

ANTILOCK BRAKE SYSTEM

Antilock System Installed

X

Proper axle control

X

Comments: None

Antilock Warning Signal within Drivers Field-of-View
Amber letters, black background, no audible warning

X

SERVICE RESERVOIRS

No. of Reservoirs 2

Automatic Condensate drain valve(s) or supply reservoir

X

Automatic Operation of condensate drain valve

X

Each Reservoir has a Drain Valve which can be manually operated

X

PARKING BRAKES

Parking Brake Control Separate from Service Brake Control

X

Parking Brake Control Accessible from Operator's Seat

X

Parking Brake control is identified in a manner that specifies its operation

X

Parking Brake Control Operates Parking Brakes of Towed Vehicle

X N/A

 Yes

 No

REMARKS: Larger of the two reservoirs is internally divided into three sections.

LABORATORY TESTS
TABLE 5
BRAKE ACTUATION AND RELEASE TIMES

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

Veh. Number: C90900

Date: 07-15-08

Driver: NA

Technician: R. Landes

FULL SYSTEM - ABS MAIN POWER ACTIVE				
Run No.	Right Steer #1		Right Drive #2	
	Apply (sec)	Release (sec)	Apply (sec)	Release (sec)
1	0.450	0.512	0.252	0.336
2	0.446	0.503	0.251	0.335
3	0.448	0.508	0.253	0.340
Avg.	0.448	0.508	0.252	0.337
FULL SYSTEM - ABS MAIN POWER FAILED				
1	0.462	0.521	0.252	0.345
2	0.458	0.517	0.253	0.339
3	0.448	0.564	0.249	0.400
Avg.	0.456	0.539	0.251	0.361
ABS - WHEEL SENSOR FAILED – OPEN				
1	0.448	0.500	0.249	0.334
2	0.450	0.507	0.254	0.330
3	0.450	0.509	0.255	0.332
Avg.	0.449	0.506	0.253	0.332
ABS – WHEEL SENSOR FAILED – SHORT				
1	0.445	0.512	0.247	0.338
2	0.449	0.499	0.252	0.328
3	0.451	0.505	0.251	0.335
Avg.	0.448	0.505	0.250	0.334

REMARKS: To simulate the "Open" failure and immediately adjacent to the wheel, the right front/steer (axle #1) wheel speed sensor lead was disconnected. To simulate the "Shorted" failure and immediately adjacent to the wheel, the right front/steer (axle #1) wheel speed sensor connector was disconnected and the two receptacle wire ends to the ABS ECU were connected with a wire. For the ABS Active Tests, the ignition was in the ON/RUN position with the engine not running. For the ABS Main Power Failed Tests, the ignition was in the OFF position. All tests were performed with the vehicle attached to "shop" air and regulated to approximately 100 psi.

ROAD TESTS
TABLE 6
PARKING BRAKE CHAMBER APPLICATION PRESSURE

PARKING BRAKE TEST

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

Vehicle Number: C90900

Test Performed By: R. Landes

Date: 07-15-08

PARKING BRAKE CHAMBER APPLICATION PRESSURE

AXLE # 2

RUN NUMBER	PRESSURE IN INTERMEDIATE PARKING CHAMBER AFTER 3 SECONDS (PSI)	
	LEFT	RIGHT
1	0.05	0.14
2	0.10	0.14
3	0.23	0.14
AVERAGE	0.13	0.14

If average pressure is less than or equal to 3 psi, use 0 psi

REMARKS: Average time to reach 3 psi – 1.4 sec. for the left chamber and 0.9 sec. for the right chamber.

Note: Tables 7 through 9 are for tests not performed by the laboratory and are, therefore, not included.

**ROAD TESTS
TABLE 10
BURNISH**

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

Vehicle Number: C90900

8.1 BURNISH TEST WEIGHTS:			
STEER AXLE: 12,000 lbs. DRIVE AXLE: 19,800 lbs.			
Driver No.	Date	Odometer Start	Odometer End
1	07/10/08	846	1,148
1	07/11/08	1,149	1,351

	Date	Time	Odometer
Test Start	07/10/08	8:10	846
Test Finish	07/11/08	13:50	1,351

ADJUSTMENT LEVELS								
	1L	1R	2L	2R	3L	3R	4L	4R
Initial	5/8 in.	5/8 in.	5/8 in.	5/8 in.				
1st	NA	NA	NA	NA				
2nd	NA	NA	NA	NA				
3rd	NA	NA	NA	NA				
Final	9/16in.	1/2 in.	3/8 in.	3/8 in.				

REMARKS: "Freestroke" measurement values were checked at initial and end of the test and at brake temperatures below 200 degrees F. The brake temperatures, during the burnish, were nominal both front to rear and side-to-side. Therefore, no brake adjustments were deemed required during the middle of the burnish.

All initial Burnish adjustment clearances were set at 5/8 in.

All post-burnish adjustments set to 5/8 in. freestroke.

Driver #1 – Richard Heberling.

....Continued...Visual Data

Snub #	Initial Speed (mph)	Avg. Cntrl. Press. (psi)	Avg. Decel (ft/s ²)	Initial Brake Temperatures °F											
				1L	1R	2L	2R								
1	40.6	39	11.1	74	75	76	75								
25	40.8	50	10.7	366	348	365	384								
50	39.9	41	10.6	381	414	487	509								
75	40.1	35	10.7	387	416	507	550								
100	39.6	32	10.2	409	429	492	556								
125	40.2	27	10.1	403	417	474	512								
150	40.1	26	10.1	394	408	465	484								
175	40.5	45	10.9	378	390	436	458								
200	40.6	46	10.9	412	434	464	508								
225	39.8	44	10.8	426	443	477	505								
250	39.9	40	10.5	411	427	456	488								
275	40.4	40	10.9	417	436	458	484								
300	40.7	38	10.9	416	436	460	479								
325	40.4	33	10.9	336	346	383	370								
350	39.9	28	11.2	389	396	437	441								
375	40.3	37	10.5	409	421	442	457								
400	40.5	38	10.5	408	421	443	461								
425	40.3	35	10.7	414	425	451	465								
450	40.2	31	10.3	408	418	434	450								
475	40.1	36	9.0	392	400	419	429								
500	40.3	39	9.9	414	426	442	455								

(Table continued on next page)

REMARKS: #1 = steer axle; #2 = rear drive axle.

....Continued

Snub #	Initial Target Speed mph	Ambient Temp °F	Comments	Driver Initials	Time
1	40	64	Initiate.	RH	8:10
25	40	66		RH	
50	40	71		RH	
75	40	73		RH	
100	40	73		RH	
125	40	75		RH	
150	40	75	Lunch.	RH	12:10
175	40	77		RH	
200	40	77		RH	
225	40	78		RH	
250	40	79		RH	
275	40	79		RH	
300	40	80	Stop - Shift End.	RH	17:15
325	40	71	Re-initatate	RH	8:40
350	40	74		RH	
375	40	75	Check Adjustment.	RH	11:20
400	40	76		RH	
425	40	77		RH	
450	40	78	Lunch.	RH	12:00
475	40	79		RH	
500	40	80	End Shift, Burnish Completed, Adjustment Check and Adjust.	RH	13:45

REMARKS: Data Sheet 11 not applicable to this test, therefore not included.

DATA SHEET 12
SERVICE BRAKE STOPPING TEST @ GVWR

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,370 / 1,393

Date: 07/16/08 Driver: R. Heberling Tech./Video: R. Landes

Project/Segment Nos.: 20040769/8001 Time: 9:45 – 11:30

Ambient Temperature: 32° to 100°F. IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Manual brake adjustments permitted prior to performing stops.

Brake Stroke Measurements @ 85 psi (in) "Free" Stroke Measurements (in.)

Axle 1 Left/Right 1 1/4 / 1 1/4 Axle 1 Left/Right 5/8 / 5/8

Axle 2 Left/Right 1 5/8 / 1 1/2 Axle 2 Left/Right 5/8 / 5/8

Dist. Req. (ft.) @ 60: GVW&LLVW Bus: 280; GVW Truck: 310; LLVW Truck & Tractor: 335; GVWR Tractor: 355.

60 MPH SERVICE BRAKE STOPS - GVWR

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12 foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time or length locked.	Comments
1	111.1	60.4	225.9	223.3	Yes	No	Video Tape
2	110.7	59.6	223.5	226.2	Yes	No	Video Tape
3	115.0	60.4	222.7	219.5	Yes	No	None
4	112.7	60.5	215.6	211.8	Yes	No	None
5	109.4	60.9	213.1	207.1	Yes	No	None
*6	101.7	19.7	29.3	30.1	Yes	No	Video Tape

Ambient Temp.: 81° F Wind Speed/Dir.: 5 mph, 263° W

Comments: *Not required – indicant test, only.

DATA SHEET 13
EMERGENCY BRAKE STOPPING TEST
PRIMARY RESERVOIR FAILURE @ GVWR

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,393 / 1,417

Date: 07/16/08 Driver: R. Heberling Tech./Video: R. Landes

Project/Segment Nos.: 20040769/8001 Time: 11:35 – 14:30

Ambient Temperature: 32° to 100°F. IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Engage service brake between three and five seconds *after* warning displayed.

Dist. Req. (ft.) @ 60 mph: All Vehicles EXCEPT Tractors: 613; Unloaded Tractors: 720.

60 MPH EMERGENCY BRAKE STOPS - GVWR (Primary Reservoir)

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12 foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time or length locked.	Comments
1	110.8	59.6	226.9	230.2	Yes	No	Video Tape
2	112.1	60.4	229.3	226.5	Yes	No	Video Tape
3	110.6	61.9	224.8	229.8	Yes	No	None
4	112.4	59.1	215.0	221.5	Yes	No	None
5	110.6	58.5	216.9	228.4	Yes	No	None
*6	110.4	21.5	34.6	30.1	Yes	No	Video Tape

Ambient Temp.: 84° F Wind Speed/Dir.: 5 mph, 225° SW

Comments: *Not required – indicant test, only.

DATA SHEET 14
EMERGENCY BRAKE STOPPING TEST
SECONDARY RESERVOIR FAILURE @ GVWR

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus
 TRC Vehicle No.: C90900 Initial/End Odo.: 1,417 / 1,441
 Date: 07/16/08 Driver: R. Heberling Tech./Video: R. Landes
 Project/Segment Nos.: 20040769/8001 Time: 14:30 - 17:00

Ambient Temperature: 32° to 100°F.

IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Engage service brake between three and five seconds *after* warning displayed.

Dist. Req. (ft.) @ 60 mph: All Vehicles EXCEPT Tractors: 613; Unloaded Tractors: 720.

60 MPH EMERGENCY BRAKE STOPS - GVWR (Secondary Reservoir)

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12-foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time or length locked.	Comments
1	50.5	59.0	263.6	272.3	Yes	No	Video Tape
2	47.7	59.2	275.9	283.8	Yes	No	Video Tape
3	39.1	59.9	293.8	294.4	Yes	No	None
4	44.1	59.8	299.9	302.2	Yes	No	None
5	47.8	59.7	294.8	298.0	Yes	No	None
6*	34.5	19.3	33.6	36.0	Yes	No	Video Tape

Ambient Temp.: 86° F Wind Speed/Dir.: 6 mph, 228° SW

Comments: *Not required – indicant test, only.

DATA SHEET 15
EMERGENCY BRAKE STOPPING TEST
PRIMARY CONTROL LINE FAILURE @ GVWR

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,453 / 1,476

Dates: 07/17/08 Driver: R. Heberling Tech./Video: R. Landes

Project/Segment Nos.: 20040769/8001 Times: 8:25 - 10:00

Ambient Temperature: 32° to 100°F.

IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Engage service brake any time after opening solenoid.

Dist. Req. (ft.) @ 60 mph: All Vehicles EXCEPT Tractors: 613; Unloaded Tractors: 720.

60 MPH EMERGENCY BRAKE STOPS - GVWR (Primary Control Line)

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12-foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time or length locked.	Comments
1	109.3	60.1	279.2	278.2	Yes	No	Video Tape
2	113.1	60.0	276.2	276.3	Yes	No	Video Tape
3	114.0	60.3	261.9	259.6	Yes	No	None
4	113.0	60.1	253.1	252.3	Yes	No	None
5	115.0	60.1	258.5	257.6	Yes	No	None
*6	112.4	20.7	37.1	34.7	Yes	No	Video Tape

Ambient Temp.: 78° F Wind Speed/Dir.: 7 mph, 223° SW

Comments: *Not required – indicant test, only.

DATA SHEET 16
PARK BRAKE TEST
20% GRADE HOLDING - GVWR

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,481

Date: 07/17/08 Driver: R. Heberling Tech./Video: K. Easterday/R. Landes

Project/Segment Nos.: 20040769/8001 Time: 10:45 – 11:00

Ambient Temperature: 32° to 100°F.

IBT's: 150° to 200°F.

Parking Brake Chamber(s) Pressure: 0 psi

20% GRADE HOLDING - GVWR

<u>X</u> GVWR <u>LLVW</u>	Initial Brake Temperature(s) (°F)	Control Pressure to Hold Vehicle (psi)	Movement to Become Stationary on Grade (inches)	Stationary on Grade For 5 minutes	
				Yes	No
	Hottest Brake				
Up Grade*	199	32	0	X	
Down Grade	189	27	0	X	

Ambient Temp.: 80° F

Wind Speed: 5 mph

Direction: 222° N

REMARKS:

The test vehicle held for five minutes in both the upgrade and downgrade orientations. Both directions were video taped.

**ROAD TESTS
DATA SHEET 17
STABILITY & CONTROL @ LLVW**

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

Veh. No.: C90900

Initial/End Odo.: 1,499 / 1,503

Date: 07/18/08 Driver: R. Heberling Observer/Video: R. Landes

Project/Segment Nos.: 20040769/8001 Time: 8:50 - 9:15

Manually Controlled Retarder: NA

Maximum Drive Through Speed 40.0 mph

75% of Max Drive Through Speed 32.0 mph

STABILITY & CONTROL - LLVW

Stop No.	Initial Speed (mph)	*Apply Time (sec)	Approx. Dist. Out of Lane (ft)	Number Markers Hit	Comments
1	29.2	0.163	0	0	Video Tape
2	29.5	0.170	0	0	Video Tape
3	30.8	0.167	0	0	Video Tape
4	30.7	0.200	0	0	Video Tape

Ambient Temp.: 78 °F

Wind Speed: 11 mph

Direction: 180° S

REMARKS: The vehicle remained in the lane during all required stops.

DATA SHEET 18 **SERVICE BRAKE STOPPING TEST @ LLVW**

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,506 / 1,523

Date: 07/18/08 Driver: R.Heberling Tech./Video: R. Landes

Project/Segment Nos.: 20040769/8001 Time: 9:30 - 10:30

Ambient Temperature: 32° to 100°F.

IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Manual brake adjustments permitted prior to performing stops.

Brake Stroke Measurements @ 85 psi (in) "Free" Stroke Measurements (in.)

Axle 1 Left/Right 1 1/4 / 1 1/4 Axle 1 Left/Right 5/8 / 5/8

Axle 2 Left/Right 1 1/2 / 1 1/2 Axle 2 Left/Right 5/8 / 5/8

Axle 3 Left/Right NA / NA Axle 2 Left/Right NA / NA

Dist. Req. (ft.) @ 60: GVW&LLVW Bus: 280; GVW Truck: 310; LLVW Truck & Tractor: 335; GVWR Tractor: 355.

60 MPH SERVICE BRAKE STOPS - LLVW

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12 foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time, or length locked.	Comments
1	111.5	60.4	169.2	167.0	Yes	No	Video Tape
2	111.9	59.3	169.6	173.5	Yes	No	Video Tape
3	114.9	60.4	173.4	171.1	Yes	No	None
4	111.5	60.5	174.7	171.8	Yes	No	None
5	113.5	59.9	172.0	172.0	Yes	No	None
*6	113.9	20.3	25.8	25.0	Yes	No	Video Tape

Ambient Temp.: 81° F Wind Speed/Dir.: 11 mph, 206° S

Comments: *Not required – indicant test, only.

Freestrokes were adjusted to 5/8 in. prior to performing service brake stops.

DATA SHEET 19
EMERGENCY BRAKE STOPPING TEST
PRIMARY RESERVOIR FAILURE @ LLVW

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,523 / 1,546

Date: 07/18/08 Driver: R. Heberling Tech./Video: R. Landes

Project/Segment Nos.: 20040769/8001 Time: 10:30 – 11:30

Ambient Temperature: 32° to 100°F. IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Engage service brake between three and five seconds *after* warning displayed.

Dist. Req. (ft.) @ 60 mph: All Vehicles EXCEPT Tractors: 613; Unloaded Tractors: 720.

60 MPH EMERGENCY BRAKE STOPS - LLVW (Primary Reservoir)

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12 foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time or length locked.	Comments
1	111.1	60.2	186.1	184.8	Yes	NO	Video Tape
2	114.3	60.0	189.2	189.4	Yes	NO	Video Tape
3	115.5	58.9	179.2	185.7	Yes	NO	None
4	113.2	59.9	180.8	181.5	Yes	NO	None
5	112.2	60.2	181.8	180.8	Yes	NO	None
*6	114.6	21.1	33.7	30.3	Yes	NO	Video Tape

Ambient Temp.: 82° F Wind Speed/Dir.: 13 mph, 229° SW

Comments: *Not required – indicant test, only.

DATA SHEET 20
EMERGENCY BRAKE STOPPING TEST
SECONDARY RESERVOIR FAILURE @ LLVW

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,551 / 1,573

Date: 07/18/08 Driver: R. Heberling Tech./Video: R. Landes

Project/Segment Nos.: 20040769/8001 Time: 12:45 – 13:55

Ambient Temperature: 32° to 100°F.

IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Engage service brake between three and five seconds *after* warning displayed.

Dist. Req. (ft.) @ 60 mph: All Vehicles EXCEPT Tractors: 613; Unloaded Tractors: 720.

60 MPH EMERGENCY BRAKE STOPS - LLVW (Secondary Reservoir)

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12-foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time or length locked.	Comments
1	51.9	61.3	211.4	202.5	Yes	NO	Video Tape
2	49.2	60.1	204.7	204.0	Yes	NO	Video Tape
3	41.7	60.9	218.5	212.1	Yes	NO	None
4	52.8	58.8	198.2	206.1	Yes	NO	None
5	47.1	61.1	204.1	196.6	Yes	NO	None
6*	41.5	21.4	33.7	29.3	Yes	NO	Video Tape

Ambient Temp.: 85° F Wind Speed/Dir.: 10 mph, 223° SW

Comments: *Not required – indicant test, only.

DATA SHEET 21
EMERGENCY BRAKE STOPPING TEST
PRIMARY CONTROL LINE FAILURE @ LLVW

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,573 / 1,595

Dates: 07/18/08 Driver: R. Heberling Tech./Video: R. Landes

Project/Segment Nos.: 20040769/8001 Times: 14:00 – 15:05

Ambient Temperature: 32° to 100°F.

IBTs: 150° to 200°F.

Requirements: Air system fully charged before each stop.

With ABS - fully apply service brake; without - driver modulates control.

Perform stops in neutral or with clutch depressed.

One of the six stops MUST be equal or less than the requirement distance.

Engage service brake any time after opening solenoid.

Dist. Req. (ft.) @ 60 mph: All Vehicles EXCEPT Tractors: 613; Unloaded Tractors: 720.

60 MPH EMERGENCY BRAKE STOPS - LLVW (Primary Control Line)

Stop	Application Pressure (psi)	Initial Speed (mph)	Actual Stopping Distance (feet)	Corrected Stopping Distance per SAE J299	In 12-foot Lane?	Wheel Lock-up Indication Position, Spd. (mph), Time or length locked.	Comments
1	114.8	58.4	199.7	210.5	Yes	NO	Video Tape
2	116.3	60.6	211.2	206.8	Yes	NO	Video Tape
3	113.9	60.0	207.2	207.1	Yes	NO	None
4	113.9	59.8	207.5	208.9	Yes	NO	None
5	113.2	61.3	217.8	208.4	Yes	NO	None
6*	112.5	21.1	33.1	29.9	Yes	NO	Video Tape

Ambient Temp.: 87° F Wind Speed/Dir.: 8 mph, 194° S

Comments: *Not required – indicant test, only.

DATA SHEET 22
PARK BRAKE TEST
20% GRADE HOLDING - LLVW

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Initial/End Odo.: 1,595

Date: 07/18/08 Driver: R. Heberling Tech./Video: R. Landes & K. Easterday

Project/Segment Nos.: 20040769/8001 Time: 15:15 – 15:30

Ambient Temperature: 32° to 100°F.

IBT's: 150° to 200°F.

Parking Brake Chamber(s) Pressure 0 psi

20% GRADE HOLDING - LLVW

<u>GVWR</u> <u>X LLVW</u>	Initial Brake Temperature(s) (°F)	Control Pressure to Hold Vehicle (psi)	Movement to Become Stationary on Grade (inches)	Stationary on Grade For 5 minutes	
				Yes	No
	Hottest Brake				
Up Grade	196	22	0	X	
Down Grade	175	22	0	X	

Ambient Temp.: 87° F

Wind Speed: 10 mph

Direction: 192° S

REMARKS: The test vehicle remained stationary on the grade facing upgrade and downgrade for the required 5-minute period. Both directions were video taped.

DATA SHEET 23
FINAL INSPECTION

Vehicle: 2009 IC/RE PB305, 72-Pass. (4X2) School Bus

TRC Vehicle No.: C90900 Final Odo.: 1,605

Project/Segment Nos.: 20040769/8001 Time: 7:30

Date: 07/24/08 Driver: NA Tech.: R. Landes

Brake Stroke Measurements @ 85 PSI (in.) "Free-Stroke" Measurements (in.)

Axle 1 Left/Right 1 1/2 / 1 3/4

Axle 1 Left/Right 1/2 / 9/16

Axle 2 Left/Right 1 1/4 / 1 1/4

Axle 2 Left/Right 1/4 / 1/4

Axle 3 Left/Right NA / NA

Axle 3 Left/Right NA / NA

SERVICE BRAKES

All Brakes Structurally Intact: ☒ Yes ☐ No

All Brakes Function Properly: ☒ Yes ☐ No

All Brakes Adjusted Within Manufacturers Recommendation: ☐ Yes ☒ No

Overall Condition of Test Vehicle: Very Good - Used.

Tires replaced: ☐ Yes ☒ No

New Brake Linings: Axle #1 ☐ Yes ☒ No; Axle #2 ☐ Yes ☒ No

Axle #3 ☐ Yes ☒ No; Axle #4 ☐ Yes ☒ No

Additional Comments:

Overall condition of the foundation brake linings, post-test, would be described as normal in appearance and color and contact area. No deep fractures or separations were present, though minor surface checking was present of the left steer. Very light glazing was present on all linings. Additionally, the rear drum's appearance would be described as normal, smooth, light polish with moderate material transfer/banding and moderate debris. The front drums displayed moderate material transfer and moderate polish with light debris.

SECTION 5.0

Instrumentation List

INSTRUMENTATION LIST
INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

Instrumentation	Serial Number (I.D. No.)	Calibration Date	Next Calibration Date
A-DAT DSR-06 Radar Fifth Wheel	140.00082	Daily on a measured mile	N/A
Lock-Up Detection System	TRC Prop.	Calibrated before test	N/A
Treadle Pressure Transducer	PT-897090	Calibrated before test using a dead weight	N/A
Pressure Transducer	PT-359018	Calibrated before test using a dead weight	N/A
Pressure Transducer	PT-351132	Calibrated before test using a dead weight	N/A
Pressure Transducer	PT-169755	Calibrated before test using a dead weight	N/A
Pressure Transducer	PT-355434	Calibrated before test using a dead weight	N/A
Mansfield-Green Dead Weight Calibrator	DW-6253	05/22/08	05/22/09
Setra Accelerometer	A-167627	Calibrated before test utilizing known calibrated inclines.	N/A
Davis - Ambient Temp. Model 6152	070321N01	08/18/07	08/18/08
Davis - Wind Velocity Model 6140	070321N03	08/18/07	08/18/08
Thermocouples	T52-0B-24K	Calibrated before test	N/A
Toledo Mettler Scales	JXGA- 5318823-5KD	05/13/08	08/13/08
McDaniel, Tire Press. Gauge (0-160 psi)	AG-003	06/08/08	09/08/08
LINK System 2060	2030	11/05/07	11/05/08
Toshiba PC (used with LINK)	43248	N/A	N/A

APPENDIX A

PHOTOGRAPHS



2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

Front View @ GVWR

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Right Side View @ GVWR

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Left Side View @ GVWR



2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

Rear View @ GVWR



2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

Front View @ LLVW

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Right Side View @ LLVW

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Right Side View @ LLVW



2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

Rear View @ LLVW

**MANUFACTURED BY
IC CORPORATION**

DATE OF MANUFACTURE 04 MO. 08 YR.

GVWR 14,424 KGS (31,800 LBS)

GAWR FRONT 5,443 KGS (12,000 LBS) WITH

295/75R22.5G	TIRES	14	PLY AT
758 KPa	(110 PSI) COLD		
RIMS	22.5X8.25	AXLE	SINGLE

GAWR REAR 8,981 KGS (19,800 LBS) WITH

10R22.5G	TIRES	14	PLY AT
723 KPa	(105 PSI) COLD		
RIMS	22.5X7.50	AXLE	DUAL

**THIS VEHICLE CONFORMS TO ALL
APPLICABLE FEDERAL MOTOR
VEHICLE SAFETY STANDARDS IN
EFFECT ON THE DATE OF
MANUFACTURE SHOWN ABOVE.**

**VEHICLE IDENTIFICATION NO.
4DRBWMAAN29A083456
VEHICLE TYPE
SCHOOL BUS # 083456**

2009 IC/RE PB305
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

USE
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ROS

Manufacturer's Placard

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

IC CORPORATION

MODEL

PB30500

SERIAL NO.

083456

CAP.

72

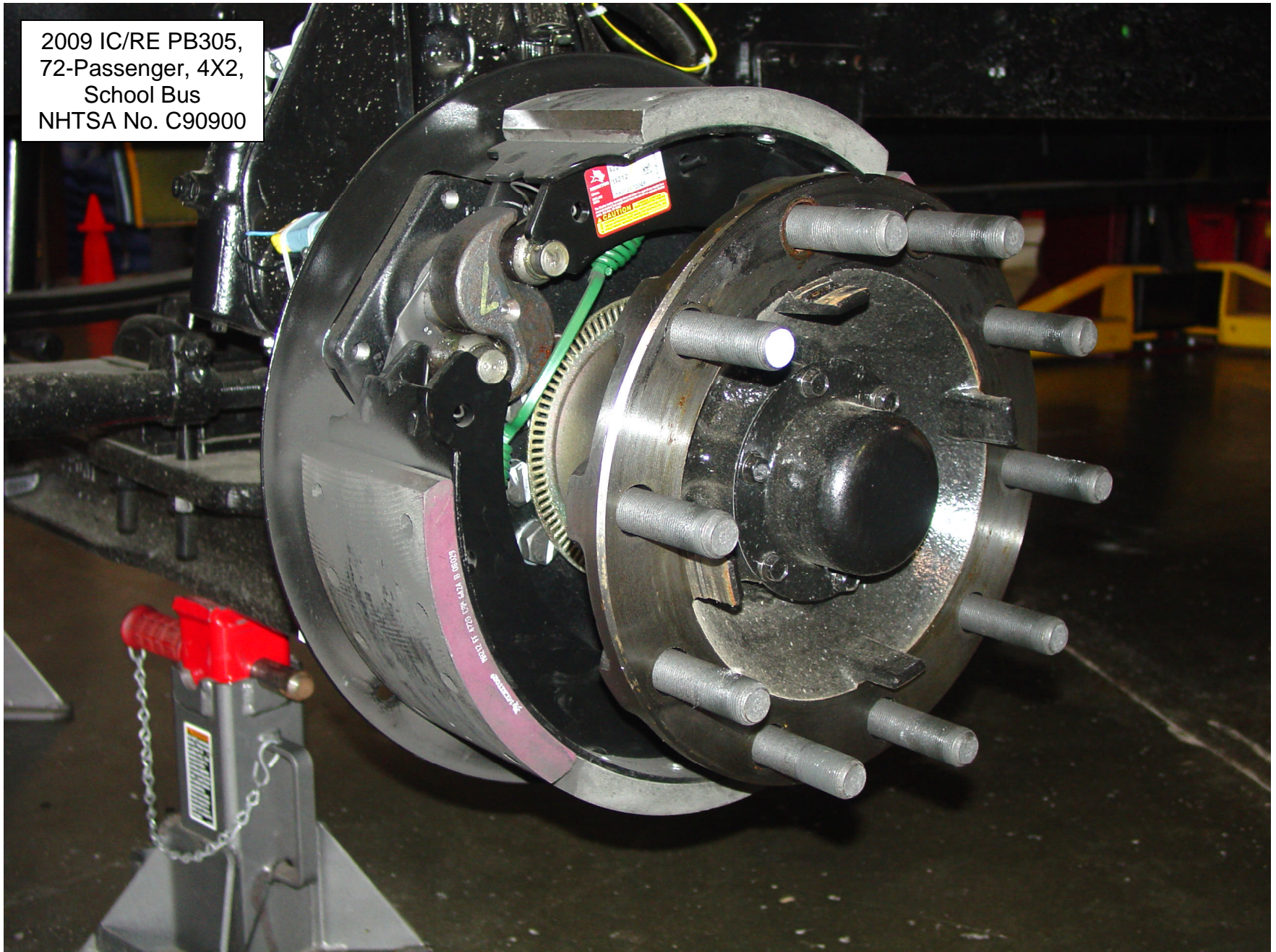
DATE MFG.

04/23/08

PARTS ORDER NO.

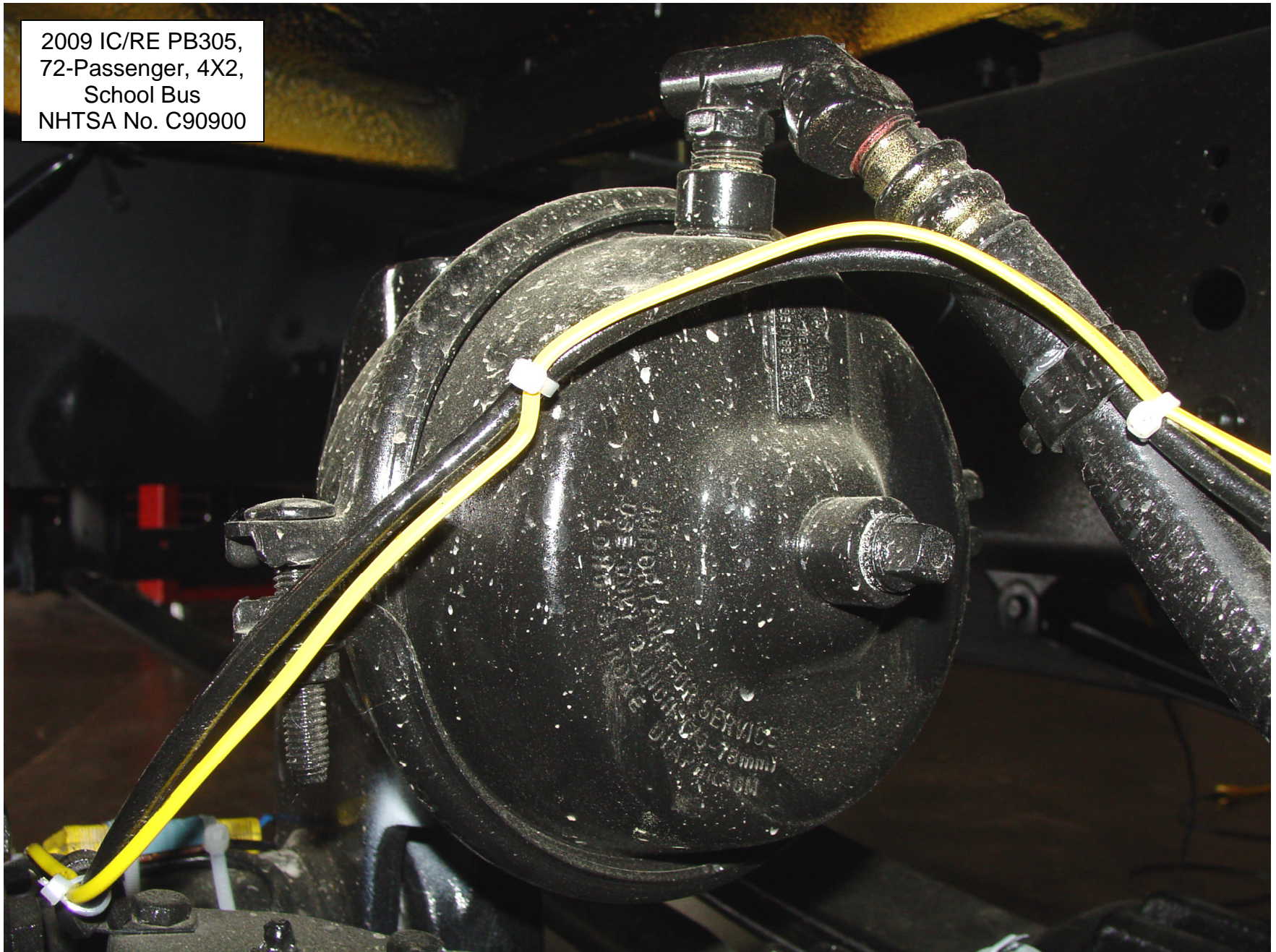
Body Identification Placard

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Left Front/Steer Brake Assembly

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Left Front/Steer Brake Chamber

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



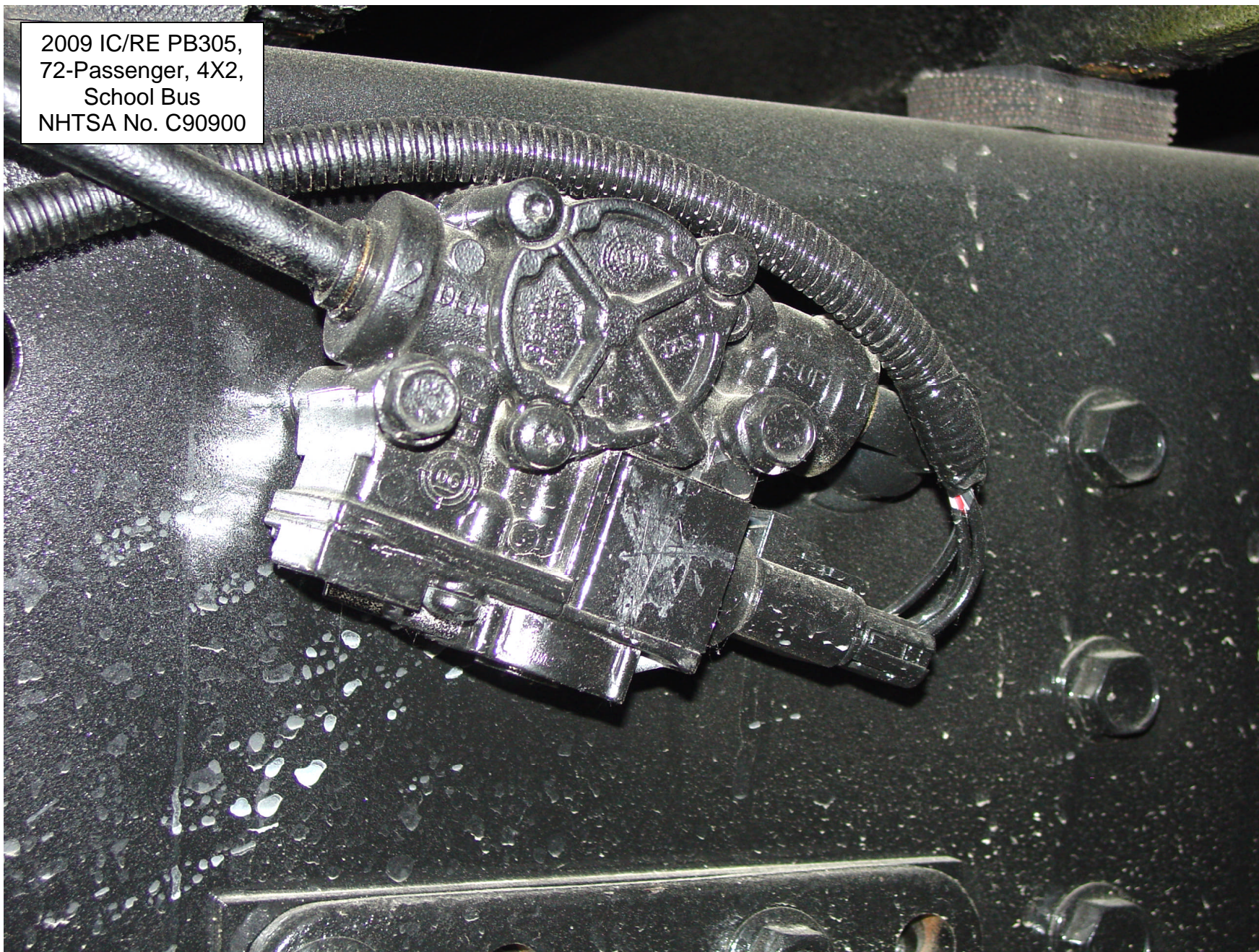
Left Front/Steer Brake Chamber

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Left Front/Steer Brake Wheel Speed Sensor

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

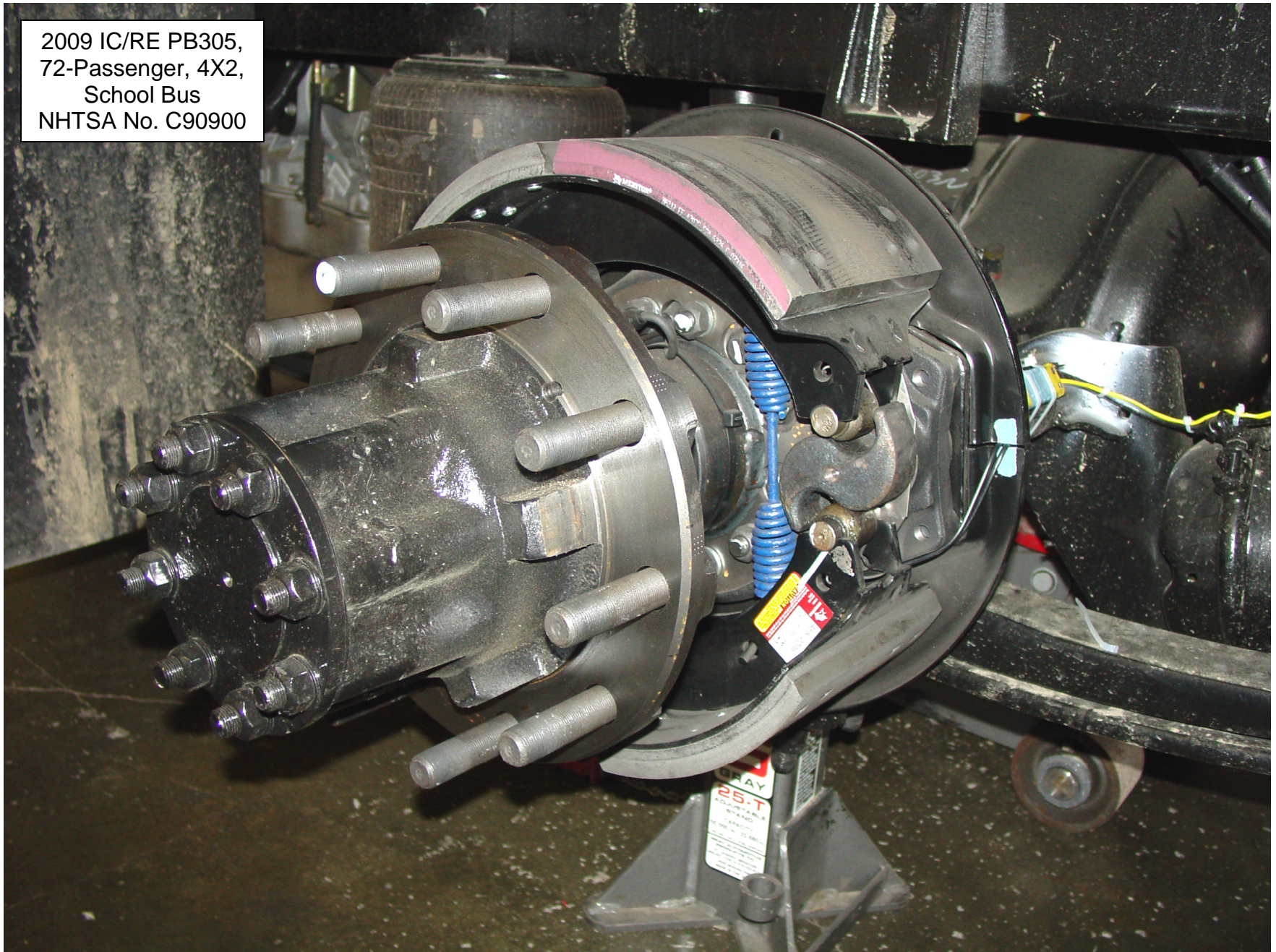


Left Front/Steer Brake ABS Modulator

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

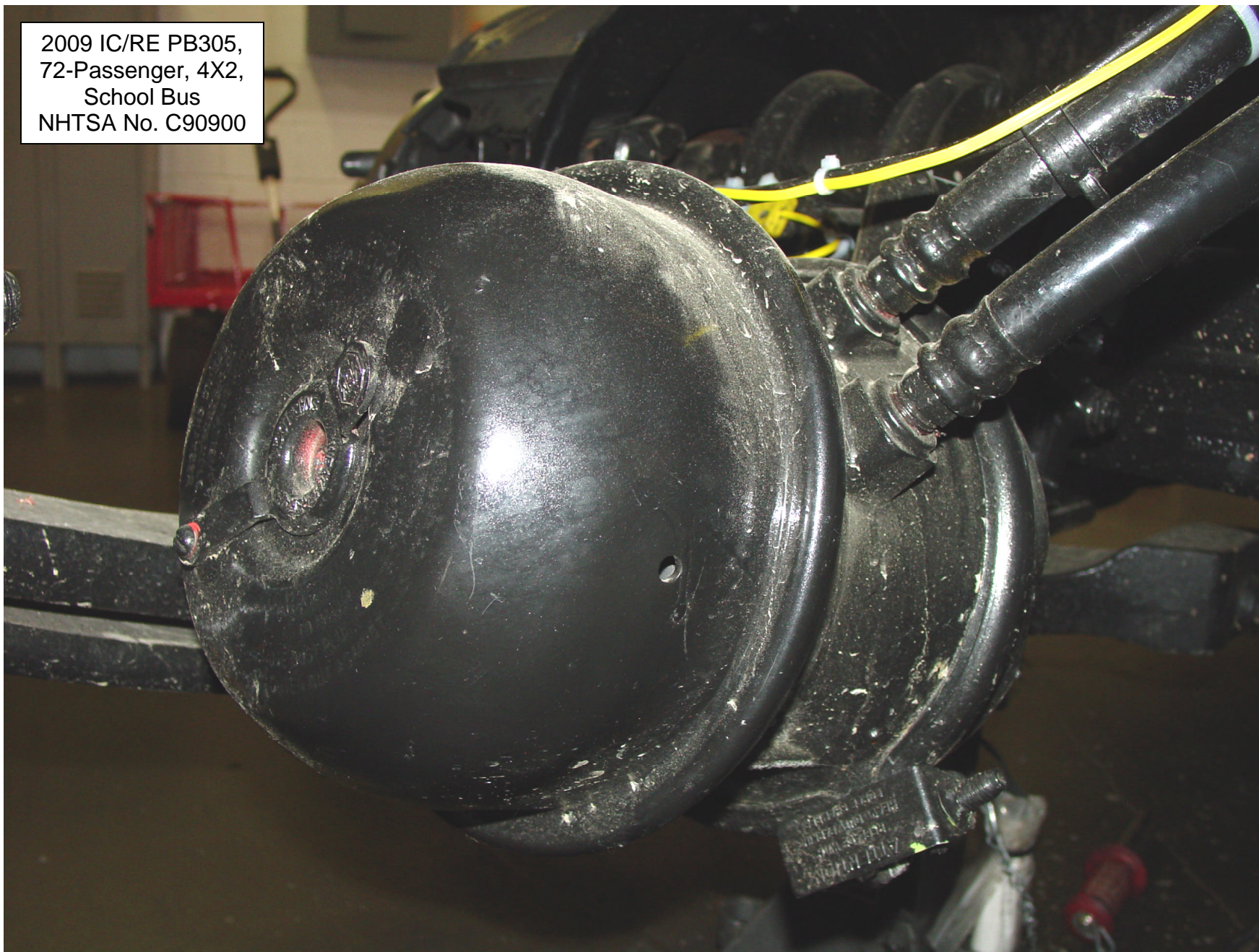
Left Front/Steer Brake Thermocouple Installation

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



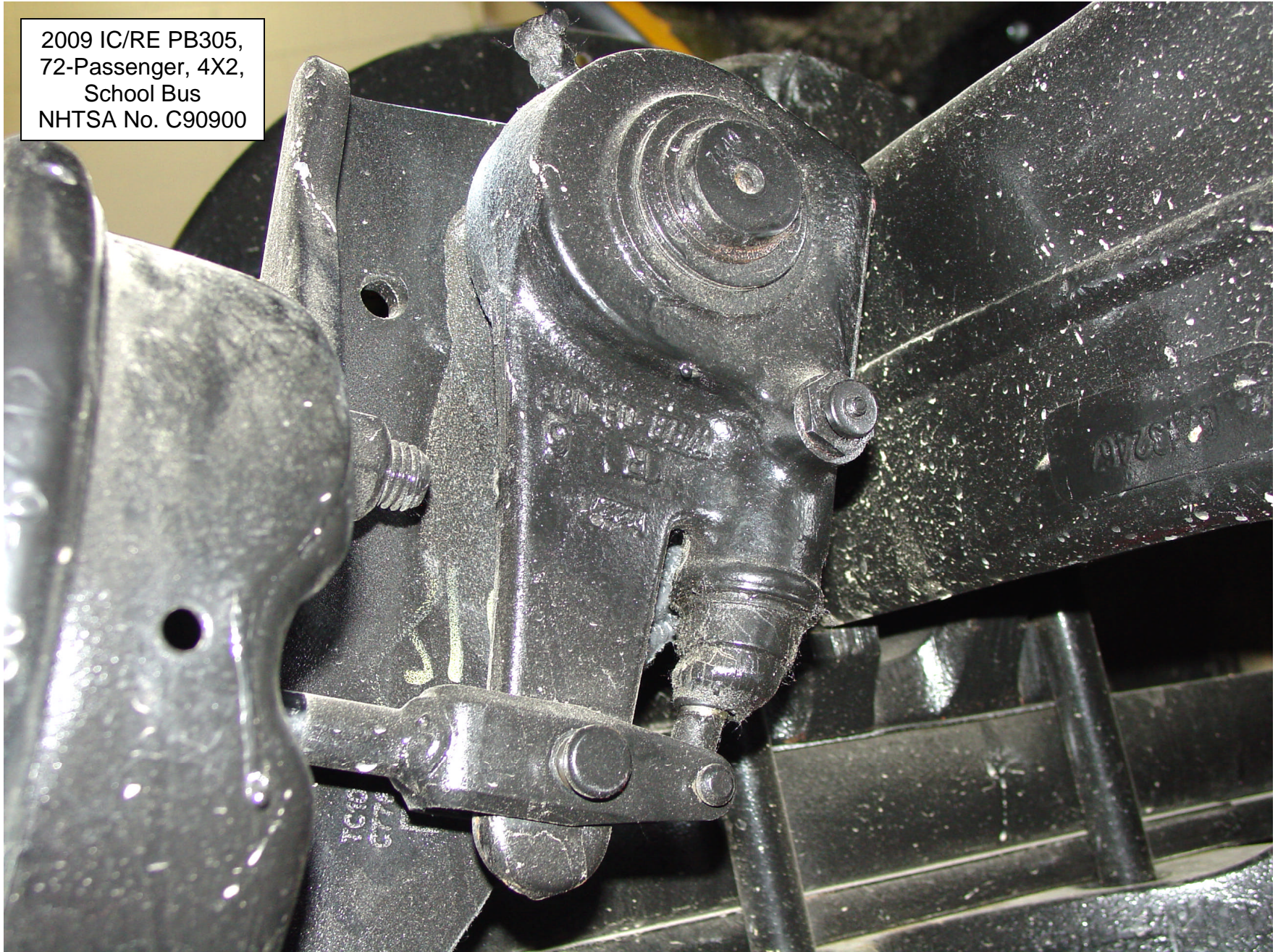
Right Rear Brake Assembly

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



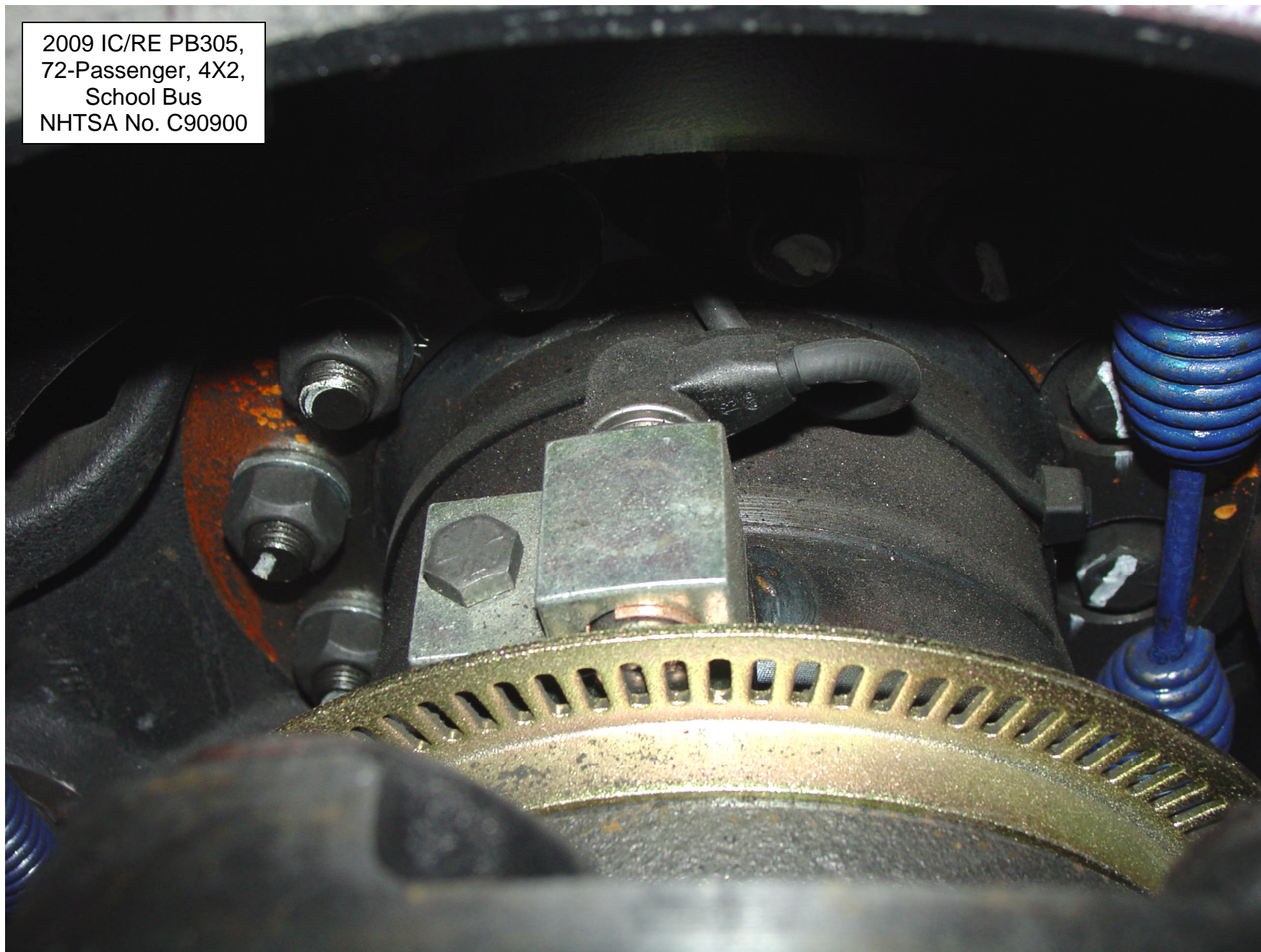
Right Rear Brake Chamber

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



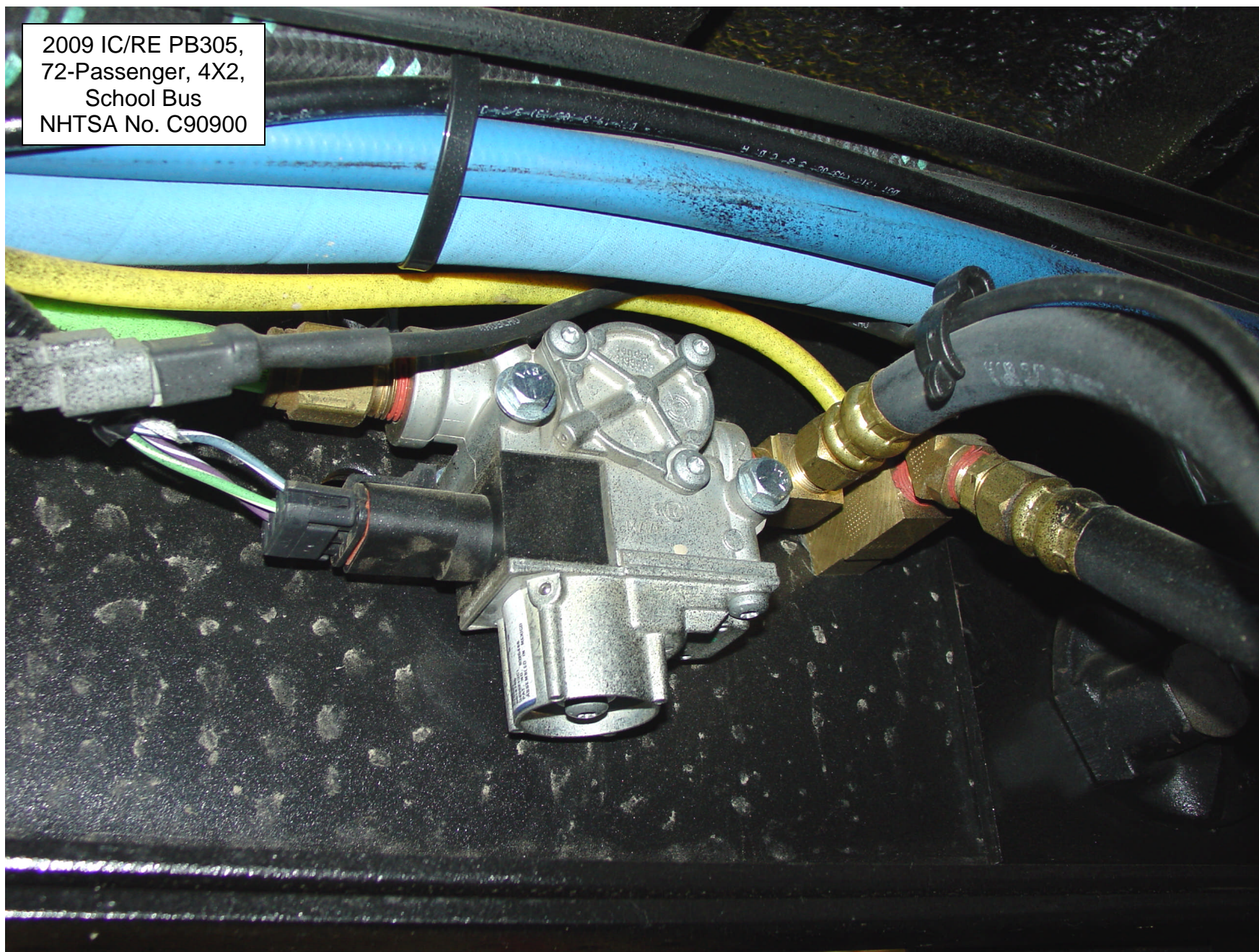
Right Rear Brake Slack Adjuster

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Right Rear Brake Wheel Speed Sensor

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

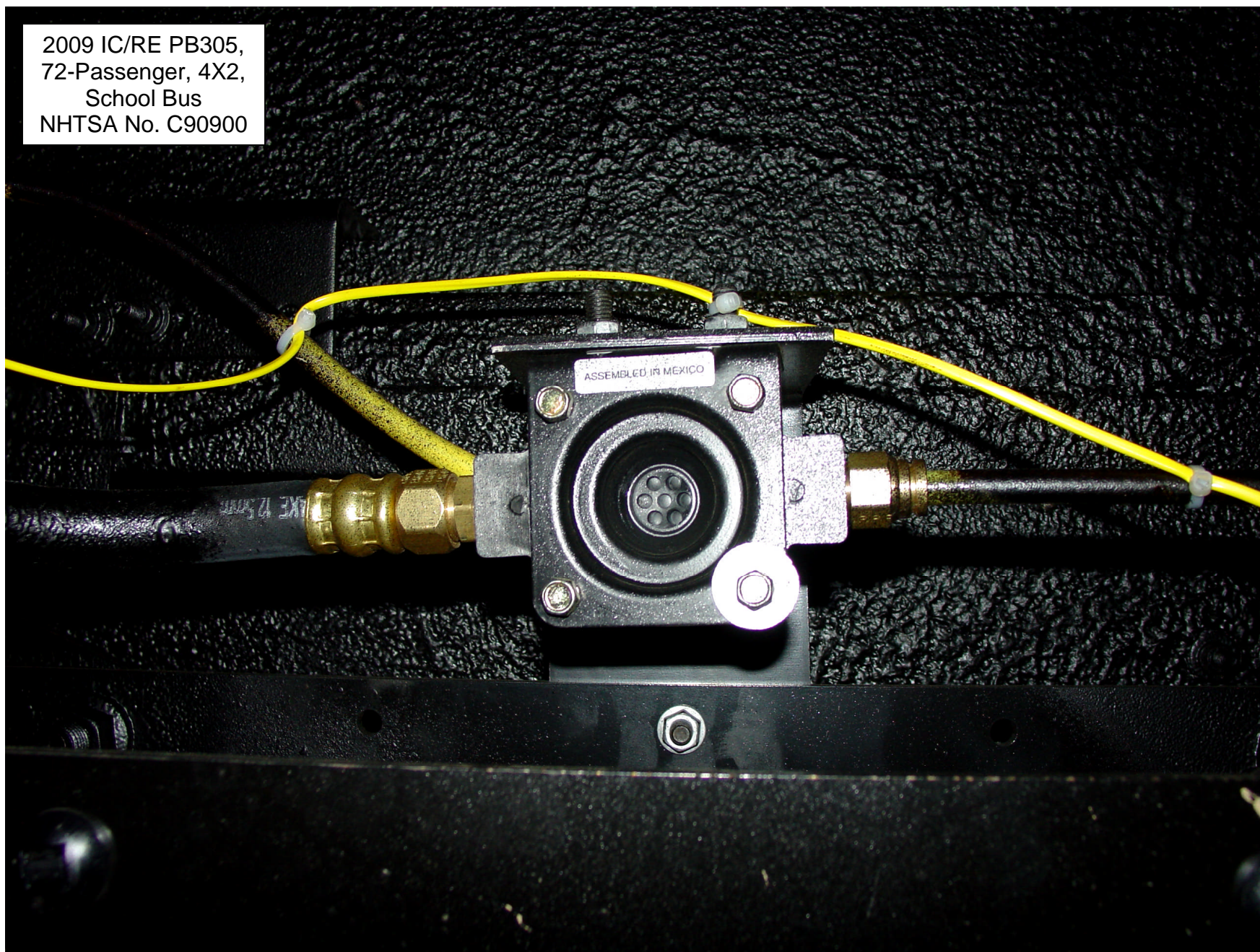


Right Rear Brake ABS Modulator Valve

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900

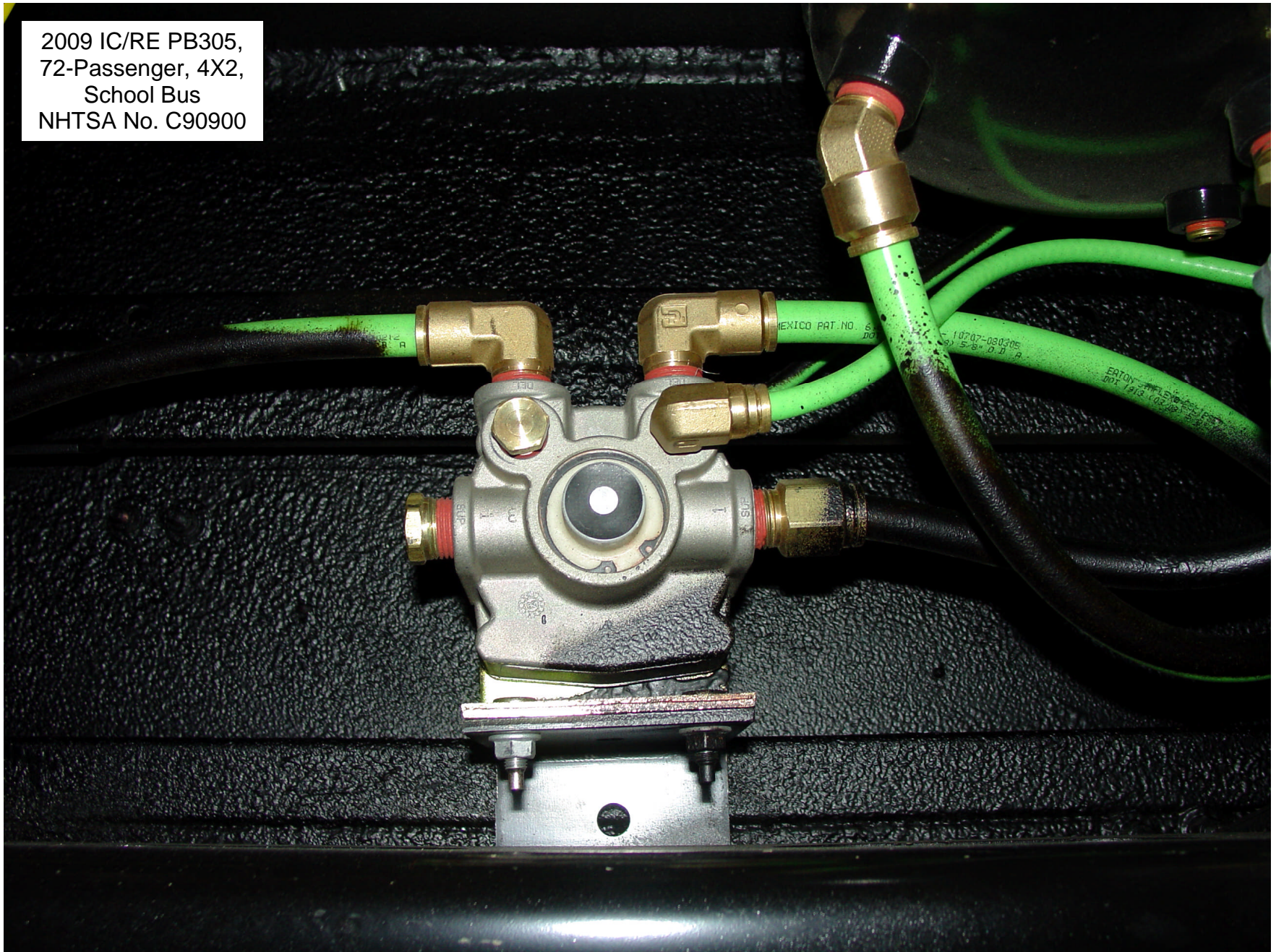
Right Rear Brake Thermocouple Installation

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



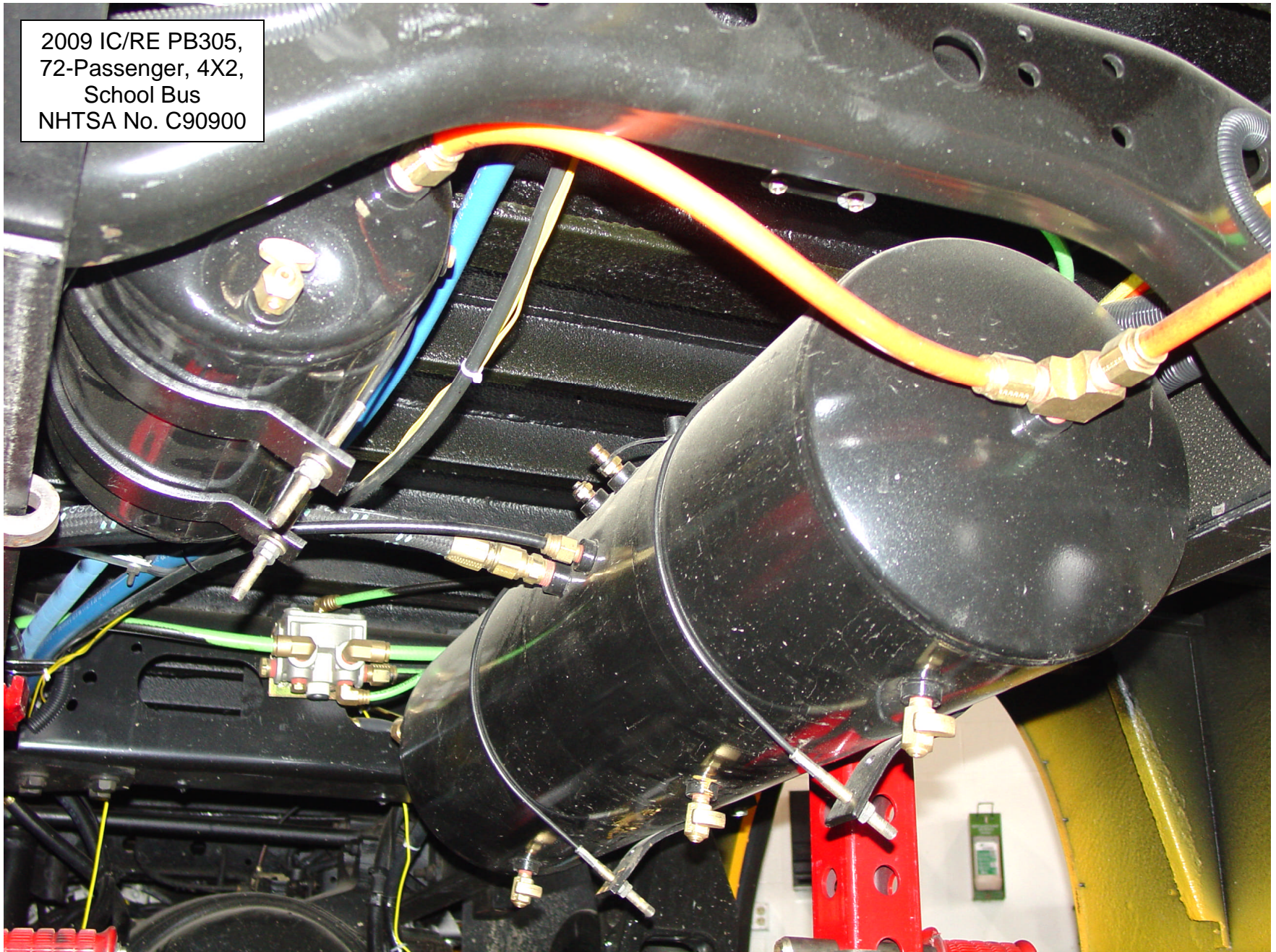
Rear Brakes Quick Release Valve

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Rear Brakes Control Valve

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Brake System Reservoirs (Large: forward section - Secondary; center section - Supply; rear section - Primary)

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Brake System Air Compressor

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Ballast in Vehicle

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



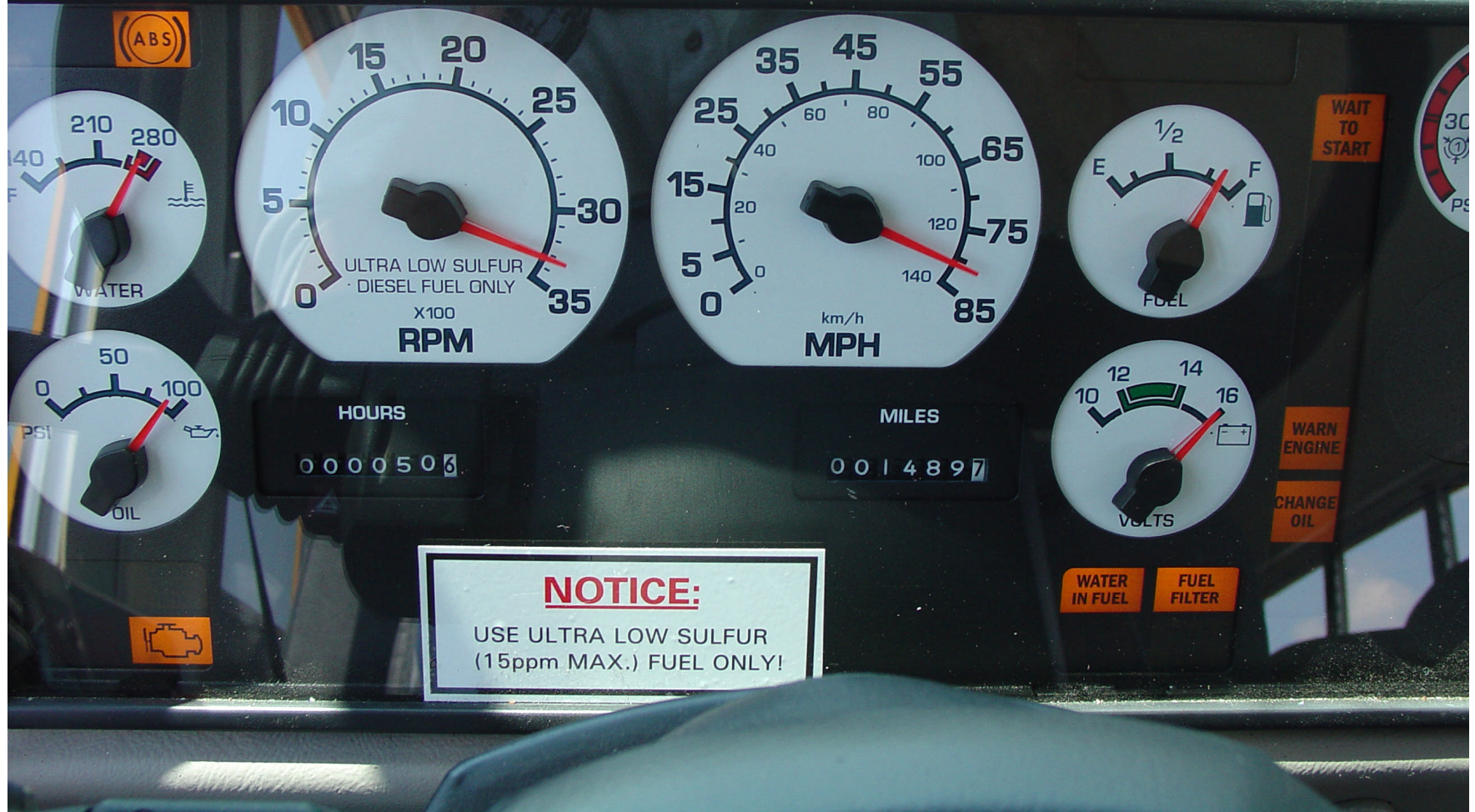
Ballast in Vehicle

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Instrumentation in Vehicle

2009 IC/RE PB305,
72-Passenger, 4X2,
School Bus
NHTSA No. C90900



Dash Warning Lamps

APPENDIX B

TEST DATA FROM REPORT GENERATOR

Vehicle: 2009 IC CORPORATION	NHTSA NUMBER: C90900	Transportation Research Center, Inc.
Make: IC/RE		10820 State Route 347
Model: PB 305		East Liberty, Ohio 43319
Body Style: SCHOOLBUS PUSHR		
Front Cold Tire Pressure: 105 (psi)		
Rear Cold Tire Pressure: 105 (psi)		Date Tested: 07/10/08

DATA SHEET 10 - BURNISH AT GVWR

Testing Conditions: INV DATA, Section 0030, 07/10/08, 08:11:47

Weather Conditions: 77°F Wind: 6 mph 260° Start Odo.: 846 End Odo.: 1351

Schedule:

Initial Brake Temperature Less Than 200°F
Initial Speed 40 mph to 20 mph
500 snubs with transmission in gear

Performance Requirements:

Interval between runs: Time necessary to reach speed of 40 mph and 1 mile, or 1.5 miles, whichever occurs first.
Constant decel rate: 10 ft/sec²
Pedal force adjusted to maintain constant decel.
No Lock-Up allowed longer than 0.1 sec above 10 mph
Vehicle Must stay in lane of 12 ft.

		LEFT	RIGHT	LEFT	RIGHT	AVG.	
SNUB	INIT	FRONT	FRONT	REAR	REAR	TREADLE	AVG.
#	SPD	IBT	IBT	IBT	IBT	PRESSURE	DECEL
	(mph)	(°F)	(°F)	(°F)	(%)	(psi)	(ft/sec ²)
====	=====	=====	=====	=====	=====	=====	=====
1	40.61	74	75	76	75	39.37	11.05
25	40.75	366	348	365	384	49.54	10.72
50	39.89	381	414	487	509	41.18	10.55
75	40.08	387	416	507	550	35.29	10.67
100	39.61	409	429	492	556	32.28	10.20
125	40.17	403	417	474	512	27.27	10.13
150	40.05	394	408	465	484	25.55	10.11
175	40.47	378	390	436	458	44.63	10.86
200	40.64	412	434	464	508	46.03	10.93
225	39.84	426	443	477	505	44.10	10.83
250	39.89	411	427	456	488	40.31	10.49
275	40.37	417	436	458	484	39.81	10.85
300	40.70	416	436	460	479	38.46	10.88
325	40.44	336	346	383	370	32.59	10.93
350	39.94	389	396	437	441	28.16	11.19
375	40.31	409	421	442	457	37.27	10.45
400	40.45	408	421	443	461	38.10	10.52
425	40.32	414	425	451	465	34.85	10.65
450	40.15	408	418	434	450	31.43	10.30
475	40.11	392	400	419	429	35.73	8.93
500	40.26	414	426	442	455	39.16	9.85

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL	Observer: NONE
Recorded Data Processed by: CHUCK JENKINS	Date: 07/30/08
Approving Laboratory Official: RANDY LANDES	Date: 08/05/08

Vehicle: 2009 IC CORPORATION	NHTSA NUMBER: C90900	Transportation Research Center, Inc.
Make: IC/RE		10820 State Route 347
Model: PB 305		East Liberty, Ohio 43319
Body Style: SCHOOLBUS PUSHR		
Front Cold Tire Pressure: 105 (psi)		
Rear Cold Tire Pressure: 105 (psi)		Date Tested: 07/16/08

DATA SHEET 12 - SERVICE BRAKE STOPPING DISTANCE AT GVWR

Testing Conditions: INV DATA, Section 0045, 07/16/08, 09:57:47

Weather Conditions: 81°F Wind: 5 mph 263° Start Odo: 1370 End Odo: 1393

Schedule:

Initial Brake Temperature: <200°F
 Initial Speed: 60 mph, or, if unattainable,
 a speed multiple of 5.
 6 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than: 280.0 feet
 (See Table 1 of FMVSS121, "Stopping Distance Requirements")
 Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
 Vehicle Must stay in lane of 12 ft.

STOP #	INIT SPD (mph)	LEFT	RIGHT	LEFT	RIGHT	ACTUAL DISTANCE (feet)	CORRECTED DISTANCE (SAE 299) (feet)	MAX. TREADLE PRESSURE (psi)	AVG.		MAX. DECEL (ft/sec ²)	AVG. DECEL (ft/sec ²)
		FRONT IBT (°F)	FRONT IBT (°F)	REAR IBT (°F)	REAR IBT (°F)				TREADLE PRESSURE (psi)	TREADLE PRESSURE (psi)		
1	60.35	173	160	184	182	225.9	223.3	111.06	105.42	36.54	21.31	
2	59.64	183	170	198	198	223.5	226.2	110.71	64.22	33.94	15.36	
3	60.43	188	180	201	201	222.7	219.5	115.05	67.24	37.04	17.62	
4	60.54	181	180	194	197	215.6	211.8	112.74	105.21	35.63	22.39	
5	60.87	181	185	195	200	213.1	207.1	109.40	95.99	38.89	22.03	
6	19.74	176	185	194	197	29.3	270.9	101.67	93.95	40.73	16.92	

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL	Observer: NONE
Recorded Data Processed by: CHUCK JENKINS	Date: 07/30/08
Approving Laboratory Official: RANDY LANDES	Date: 08/05/08

Vehicle: 2009 IC CORPORATION
Make: IC/RE
Model: PB 305
Body Style: SCHOOLBUS PUSHR
Front Cold Tire Pressure: 105 (psi)
Rear Cold Tire Pressure: 105 (psi)

NHTSA NUMBER: C90900

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/16/08

DATA SHEET 13 - EMERGENCY BRAKE STOPPING DISTANCE AT GVWR
Primary Reservoir Failure

Testing Conditions: INV DATA, Section 0050, 07/16/08, 11:38:03

Weather Conditions: 84°F Wind: 5 mph 225° Start Odo: 1393 End Odo: 1417

Schedule:

Initial Brake Temperature: <200°F
Initial Speed: 60 mph, or, if unattainable,
a speed multiple of 5.
6 stops with transmission in gear

Performance Requirements:

One Stop with:
Stopping Distance less than: 613.0 feet
(See Table 1 of FMVSS121, "Stopping Distance Requirements")
Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
Vehicle Must stay in lane of 12 ft.

STOP #	INIT SPD (mph)	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE (feet)	CORRECTED DISTANCE (SAE 299) (feet)	MAX. TREADLE PRESSURE (psi)	AVG. TREADLE PRESSURE (psi)	MAX. DECEL (ft/sec ²)	AVG. DECEL (ft/sec ²)
		IBT (°F)	IBT (°F)	IBT (°F)	IBT (°F)						
1	59.57	160	171	177	176	226.9	230.2	110.82	106.27	35.91	22.46
2	60.37	184	188	189	195	229.3	226.5	112.05	104.52	34.48	22.28
3	61.94	190	193	186	198	244.8	229.8	110.60	103.64	35.85	22.46
4	59.11	196	199	189	204	215.0	221.5	112.35	105.03	35.24	23.72
5	58.48	157	151	171	159	216.9	228.4	110.55	103.59	34.47	21.78
6	21.46	205	189	197	200	34.6	270.3	110.37	103.16	37.09	17.76

STOP #	DRIVER VEHICLE STOP COMMENTS			
	(Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 07/30/08
Approving Laboratory Official: RANDY LANDES Date: 08/05/08

Vehicle: 2009 IC CORPORATION NHTSA NUMBER: C90900 Transportation Research Center, Inc.
 Make: IC/RE 10820 State Route 347
 Model: PB 305 East Liberty, Ohio 43319
 Body Style: SCHOOLBUS PUSH
 Front Cold Tire Pressure: 105 (psi)
 Rear Cold Tire Pressure: 105 (psi) Date Tested: 07/16/08

DATA SHEET 14 - EMERGENCY BRAKE SECONDARY STOPPING DISTANCE AT GVWR Secondary Reservoir Failure

Testing Conditions: INV DATA, Section 0051, 07/16/08, 14:35:31

Weather Conditions: 86°F Wind: 6 mph 228° Start Odo: 1417 End Odo: 1441

Schedule:

Initial Brake Temperature: <200°F
 Initial Speed: 60 mph, or, if unattainable,
 a speed multiple of 5.
 6 stops with transmission in gear

Performance Requirements:

One Stop with:
 Stopping Distance less than: 613.0 feet
 (See Table 1 of FMVSS121, "Stopping Distance Requirements")
 Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
 Vehicle Must stay in lane of 12 ft.

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	TREADLE	TREADLE	DECEL	DECEL
	(mph)	(°F)	(°F)	(°F)	(°F)	(feet)	(feet)	(psi)	(psi)	(ft/sec²)	(ft/sec²)
1	59.03	182	176	176	177	263.6	272.3	50.45	31.65	33.59	21.43
2	59.15	174	166	196	200	275.9	283.8	47.69	29.36	34.92	21.32
3	59.94	159	152	190	196	293.8	294.4	39.10	20.79	30.92	19.54
4	59.77	148	140	186	199	299.9	302.2	44.09	23.66	33.15	20.46
5	59.68	147	139	192	202	294.8	298.0	47.80	29.45	34.05	22.37
6	19.33	144	138	192	203	33.6	323.6	34.47	28.03	24.96	13.38

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 07/30/08
 Approving Laboratory Official: RANDY LANDES Date: 08/05/08

Vehicle: 2009 IC CORPORATION
Make: IC/RE
Model: PB 305
Body Style: SCHOOLBUS PUSHR
Front Cold Tire Pressure: 105 (psi)
Rear Cold Tire Pressure: 105 (psi)

NHTSA NUMBER: C90900

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/17/08

DATA SHEET 15 - EMERGENCY BRAKE CONTROL LINE FAILURE DISTANCE @GVWR Control Line Failure

Testing Conditions: INV DATA, Section 0052, 07/17/08, 08:18:10

Weather Conditions: 78°F Wind: 7 mph 223° Start Odo: 1453 End Odo: 1476

Schedule:

Initial Brake Temperature: <200°F
Initial Speed: 60 mph, or, if unattainable,
a speed multiple of 5.
6 stops with transmission in gear

Performance Requirements:

One Stop with:
Stopping Distance less than: 613.0 feet
(See Table 1 of FMVSS121, "Stopping Distance Requirements")
Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
Vehicle Must stay in lane of 12 ft.

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	TREADLE	TREADLE	DECEL	DECEL
	(mph)	(°F)	(°F)	(°F)	(°F)	(feet)	(feet)	(psi)	(psi)	(ft/sec²)	(ft/sec²)
1	60.10	161	138	161	166	279.2	278.2	109.33	106.52	26.01	14.59
2	59.99	199	179	174	188	276.2	276.3	113.13	106.04	26.29	15.72
3	60.27	205	195	169	191	261.9	259.6	113.96	97.21	27.19	15.28
4	60.10	196	194	156	185	253.1	252.3	113.03	97.51	27.45	16.58
5	60.10	201	200	157	187	258.5	257.6	114.98	105.47	29.04	18.57
6	20.67	201	203	154	189	37.1	312.8	112.38	102.57	33.54	12.95

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 07/30/08
Approving Laboratory Official: RANDY LANDES Date: 08/05/08

Vehicle: 2009 IC CORPORATION	NHTSA NUMBER: C90900	Transportation Research Center, Inc.
Make: IC/RE		10820 State Route 347
Model: PB 305		East Liberty, Ohio 43319
Body Style: SCHOOLBUS PUSHR		
Front Cold Tire Pressure: 105 (psi)		
Rear Cold Tire Pressure: 105 (psi)		Date Tested: 07/17/08

DATA SHEET 16 - PARKING BRAKE TEST (GRADE HOLDING) AT GVWR

Testing Conditions: INV DATA, Section 0065, 07/17/08, 11:00:37			
Parking brake: N/A	Non-service type: N/A	Service type: HAND-OPERATED	
Weather Conditions: 80°F	Wind: 5 mph 222°	Start Odo.: 1481	End Odo.: 1481
Test Weight: Total:31790lbs	Front:12000lbs	Rear:19790lbs	

<u>Schedule:</u>	<u>Performance Requirements:</u>
Initial Brake Temperature <200°F or (Ambient temp. if non-service brake type materials)	Up to Three Applies in each direction:
Loaded to GVWR with transmission in neutral	Parking brake must hold the vehicle stationary in both directions for 5 minutes each.
Drive onto 20% slope in forward and reverse directions.	

NOTE: For vehicles with parking brake systems not utilizing the service brake friction elements, the friction elements of such systems are to be burnished prior to parking brake tests according to the manufacturer's published recommendation as furnished to the purchaser. If no recommendations are furnished, test the system in an unburnished condition. If recommendations are furnished, record method used.

	LEFT	RIGHT	AVG	
	REAR	REAR	REAR	
APPLY	IBT	IBT	IBT	DRIVER VEHICLE STOP COMMENTS
#	(°F)	(°F)	(°F)	(Direction of Stop (Up/Down) - Brake holds/fails)
=====	=====	=====	=====	=====
1	174	190	182.0	down hill 20 %
2	173	185	179.0	uphill 20% GRADE

Is brake system indicator lamp activated: YES (X) NO ()

COMMENTS: ENCOUNTERED COMPUTER LOGGING PROBLEM DURING UPHILL TEST.
NOT RECORDED. HOWEVER, UPHILL TEST WAS IN COMPLIANCE; HELD.

DATA INDICATES COMPLIANCE:	YES ()	NO (X)
Driver: RICHARD HERBERL	Observer: NONE	
Recorded Data Processed by: CHUCK JENKINS	Date: 07/30/08	
Approving Laboratory Official: RANDY LANDES	Date: 08/05/08	

Vehicle: 2009 IC CORPORATION	NHTSA NUMBER: C90900	Transportation Research Center, Inc.
Make: IC/RE		10820 State Route 347
Model: PB 305		East Liberty, Ohio 43319
Body Style: SCHOOLBUS PUSHR		
Front Cold Tire Pressure: 105 (psi)		
Rear Cold Tire Pressure: 105 (psi)		Date Tested: 07/18/08

DATA SHEET 17 - STABILITY AND CONTROL AT LLVW

Testing Conditions: INV DATA, Section 0040, 07/18/08, 08:55:32

Weather Conditions: 78°F Wind: 11 mph 180° Start Odo.: 1499 End Odo.: 1503

Schedule:

Initial Brake Temperature <200 F
Initial Speed <=40 mph LLVW
4 stops with transmission in neutral

Performance Requirements:

Three Stops with:
Highest possible constant speed at which vehicle
can be driven through 200 feet of arc of low
Mu 500 ft radius curve.
Vehicle Must stay in lane of 12 feet

STOP #	INIT SPD (mph)	LEFT	RIGHT	LEFT	RIGHT	ACTUAL DISTANCE (feet)	CORRECTED DISTANCE (SAE 299) (feet)	MAX. TREADLE PRESSURE (psi)	AVG. TREADLE PRESSURE (psi)	MAX. DECEL (ft/sec²)	AVG. DECEL (ft/sec²)
		FRONT IBT (°F)	FRONT IBT (°F)	REAR IBT (°F)	REAR IBT (°F)						
1	29.17	171	165	218	208	111.4	117.8	115.87	101.08	23.77	9.73
2	29.48	175	167	225	210	118.7	122.9	115.74	101.17	28.67	9.63
3	30.83	161	156	203	189	126.0	119.3	119.09	103.07	26.29	10.62
4	30.67	152	147	190	177	123.8	118.5	116.45	101.79	31.65	11.32

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Corrected Distances are used to determine shortest stopping distance.

COMMENTS: MAXIMUM DRIVE THROUGH SPEED = 40 MPH.
TARGET SPEED IS 75% OF 40 MPH = 30 MPH.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL	Observer: NONE
Recorded Data Processed by: CHUCK JENKINS	Date: 07/30/08
Approving Laboratory Official: RANDY LANDES	Date: 08/05/08

Vehicle: 2009 IC CORPORATION	NHTSA NUMBER: C90900	Transportation Research Center, Inc.
Make: IC/RE		10820 State Route 347
Model: PB 305		East Liberty, Ohio 43319
Body Style: SCHOOLBUS PUSHR		
Front Cold Tire Pressure: 105 (psi)		
Rear Cold Tire Pressure: 105 (psi)		Date Tested: 07/18/08

DATA SHEET 18 - SERVICE BRAKE STOPPING DISTANCE AT LLVW

Testing Conditions: INV DATA, Section 0046, 07/18/08, 09:32:27

Weather Conditions: 81°F Wind: 11 mph 206° Start Odo: 1506 End Odo: 1523

Schedule:

Initial Brake Temperature: <200°F
Initial Speed: 60 mph, or, if unattainable,
a speed multiple of 5.
6 stops with transmission in gear

Performance Requirements:

One Stop with:
Stopping Distance less than: 280.0 feet
(See Table 1 of FMVSS121, "Stopping Distance Requirements")
Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
Vehicle Must stay in lane of 12 ft.

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		
#	SPD	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	TREADLE	TREADLE	MAX.	AVG.
	(mph)	(°F)	(°F)	(°F)	(°F)	(feet)	(SAE 299)	PRESSURE	PRESSURE	DECEL	DECEL
								(psi)	(psi)	(ft/sec²)	(ft/sec²)
1	60.39	135	134	172	158	169.2	167.0	111.51	94.19	43.08	23.09
2	59.31	152	152	194	178	169.6	173.5	111.86	92.92	40.38	22.86
3	60.39	158	159	197	184	173.4	171.1	114.94	94.78	42.77	21.97
4	60.51	161	159	195	181	174.7	171.8	111.53	93.83	47.64	22.57
5	59.89	164	162	200	178	172.0	172.7	113.50	95.39	49.21	23.23
6	20.31	161	159	191	173	25.8	225.2	113.88	98.68	39.61	16.92

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL	Observer: NONE
Recorded Data Processed by: CHUCK JENKINS	Date: 07/30/08
Approving Laboratory Official: RANDY LANDES	Date: 08/05/08

Vehicle: 2009 IC CORPORATION
Make: IC/RE
Model: PB 305
Body Style: SCHOOLBUS PUSHB
Front Cold Tire Pressure: 105 (psi)
Rear Cold Tire Pressure: 105 (psi)

NHTSA NUMBER: C90900

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/18/08

DATA SHEET 19 - EMERGENCY BRAKE STOPPING DISTANCE AT LLVW Primary Reservoir Failure

Testing Conditions: INV DATA, Section 0053, 07/18/08, 10:40:06

Weather Conditions: 82°F Wind: 13 mph 229° Start Odo: 1523 End Odo: 1546

Schedule:

Initial Brake Temperature: <200°F
Initial Speed: 60 mph, or, if unattainable,
a speed multiple of 5.
6 stops with transmission in gear

Performance Requirements:

One Stop with:
Stopping Distance less than: 513.0 feet
(See Table 1 of FMVSS121, "Stopping Distance Requirements")
Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
Vehicle Must stay in lane of 12 ft.

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	TREADLE	TREADLE		DECEL	DECEL
	(mph)	(°F)	(°F)	(°F)	(°F)	(feet)	(SAE 299)	PRESSURE	PRESSURE		(ft/sec²)	(ft/sec²)
1	60.20	146	146	169	156	186.1	184.8	111.14	93.67	38.23	22.19	
2	59.98	163	160	188	178	189.2	189.4	114.29	94.51	39.23	22.14	
3	58.94	171	168	195	192	179.2	185.7	115.50	95.76	54.19	24.51	
4	59.88	175	171	196	197	180.8	181.5	113.19	96.02	49.03	24.56	
5	60.17	176	175	195	199	181.8	180.8	112.23	94.38	45.26	24.09	
6	21.12	171	172	190	196	33.7	271.9	114.60	93.42	38.57	16.77	

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 07/30/08
Approving Laboratory Official: RANDY LANDES Date: 08/05/08

Vehicle: 2009 IC CORPORATION
Make: IC/RE
Model: PB 305
Body Style: SCHOOLBUS PUSHR
Front Cold Tire Pressure: 105 (psi)
Rear Cold Tire Pressure: 105 (psi)

NHTSA NUMBER: C90900

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/18/08

DATA SHEET 20 - EMERGENCY BRAKE SECONDARY STOPPING DISTANCE AT LLVW Secondary Reservoir Failure

Testing Conditions: INV DATA, Section 0054, 07/18/08, 12:49:23

Weather Conditions: 85°F Wind: 10 mph 223° Start Odo: 1551 End Odo: 1573

Schedule:

Initial Brake Temperature: <200°F
Initial Speed: 60 mph, or, if unattainable,
a speed multiple of 5.
6 stops with transmission in gear

Performance Requirements:

One Stop with:
Stopping Distance less than: 613.0 feet
(See Table 1 of FMVSS121, "Stopping Distance Requirements")
Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
Vehicle Must stay in lane of 12 ft.

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	TREADLE	TREADLE	DECEL	DECEL
	(mph)	(°F)	(°F)	(°F)	(°F)	(feet)	(feet)	(psi)	(psi)	(ft/sec²)	(ft/sec²)
1	61.31	148	145	170	157	211.4	202.5	51.92	36.16	41.50	23.64
2	60.10	157	155	194	183	204.7	204.0	49.21	34.51	36.69	23.23
3	60.89	155	152	194	191	218.5	212.1	41.68	28.86	35.74	22.55
4	58.83	150	148	196	198	198.2	206.1	52.77	38.02	37.99	23.91
5	61.14	149	150	196	200	204.1	196.6	47.14	34.78	35.46	23.42
6	21.44	144	147	188	195	33.7	263.9	41.50	33.36	34.21	18.41

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 07/30/08
Approving Laboratory Official: RANDY LANDES Date: 08/05/08

Vehicle: 2009 IC CORPORATION
Make: IC/RE
Model: PB 305
Body Style: SCHOOLBUS PUSH
Front Cold Tire Pressure: 105 (psi)
Rear Cold Tire Pressure: 105 (psi)

NHTSA NUMBER: C90900

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/18/08

DATA SHEET 21 - EMERGENCY BRAKE CONTROL LINE FAILURE DISTANCE @LLVW Control Line Failure (Continued)

Testing Conditions: INV DATA, Section 0055, 07/18/08, 14:05:55

Weather Conditions: 87°F Wind: 8 mph 194° Start Odo: 1573 End Odo: 1595

Schedule:

Initial Brake Temperature: <200°F
Initial Speed: 60 mph, or, if unattainable,
a speed multiple of 5.
6 stops with transmission in gear

Performance Requirements:

One Stop with:
Stopping Distance less than: 613.0 feet
(See Table 1 of FMVSS121, "Stopping Distance Requirements")
Lock-Up allowed no longer than 1 sec above 20 mph on 1 wheel
Vehicle Must stay in lane of 12 ft.

STOP #	INIT SPD (mph)	LEFT		RIGHT		ACTUAL DISTANCE (feet)	CORRECTED DISTANCE (SAE 299) (feet)	MAX. TREADLE PRESSURE (psi)	AVG.		MAX. DECEL (ft/sec²)	AVG. DECEL (ft/sec²)
		FRONT IBT (°F)	FRONT IBT (°F)	REAR IBT (°F)	REAR IBT (°F)				TREADLE PRESSURE (psi)	DECEL (ft/sec²)		
1	58.44	131	135	169	167	199.7	210.5	114.76	95.73	37.60	23.04	
2	60.63	158	157	189	194	211.2	206.8	116.27	95.29	38.12	23.60	
3	60.01	163	159	177	190	207.2	207.1	113.94	94.73	38.97	24.02	
4	59.79	173	170	182	200	207.5	208.9	113.86	95.69	37.43	24.06	
5	61.33	173	173	177	200	217.8	208.4	113.20	94.36	50.36	24.16	
6	21.05	175	172	171	198	33.1	269.0	112.50	97.77	36.42	19.27	

STOP #	DRIVER VEHICLE STOP COMMENTS		
	(Wheel Lock up	- Direction of Stop	- Stay in Lane)
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 07/30/08
Approving Laboratory Official: RANDY LANDES Date: 08/05/08

Vehicle: 2009 IC CORPORATION NHTSA NUMBER: C90900 Transportation Research Center, Inc.
 Make: IC/RE 10820 State Route 347
 Model: PB 305 East Liberty, Ohio 43319
 Body Style: SCHOOLBUS PUSHR
 Front Cold Tire Pressure: 105 (psi)
 Rear Cold Tire Pressure: 105 (psi) Date Tested: 07/18/08

DATA SHEET 22 - PARKING BRAKE TEST (GRADE HOLDING) AT LLVW

Testing Conditions: INV DATA, Section 0066, 07/18/08, 15:17:21
 Parking Brake: N/A Non-service type: N/A Service type: HAND-OPERATED

Weather Conditions: 87°F Wind: 11 mph 192° Start Odo.: 1596 End Odo.: 1596

Test Weight: Total:20140lbs Front: 6150lbs Rear:13990lbs

Schedule:

Initial Brake Temperature <200°F or (Ambient temp.
 if non-service brake type materials)
 Loaded to GVWR with transmission in neutral
 Drive onto 20% slope in forward and reverse directions.

Performance Requirements:

Up to Three Applies in each direction:
 Parking brake must hold the vehicle stationary
 in both directions for 5 minutes each.

NOTE: For vehicles with parking brake systems not utilizing the
 service brake friction elements, the friction elements of such systems
 are to be burnished prior to parking brake tests according to the
 manufacturer's published recommendation as furnished to the purchaser.
 If no recommendations are furnished, test the system in an unburnished
 condition. If recommendations are furnished, record method used.

	LEFT	RIGHT	AVG	
	REAR	REAR	REAR	
APPLY	IBT	IBT	IBT	DRIVER VEHICLE STOP COMMENTS
#	(°F)	(°F)	(°F)	(Direction of Stop (Up/Down) - Brake holds/fails)
=====	=====	=====	=====	=====
1	171	192	181.5	UPHILL 20% HELD
2	160	175	167.5	downhill 20 % held

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: RICHARD HERBERL Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 07/30/08
 Approving Laboratory Official: RANDY LANDES Date: 08/05/08

APPENDIX C

ENGINEER'S TEST COMMENTS

The new test vehicle was acquired and owned by NHTSA/OVSC and was driven from its final assembly location to TRC. All components delivered on the test vehicle were utilized during the testing, no replacements were made.

Regarding the results on Table 5, “Brake Actuation and Release Times,” Full System – ABS Power Failed, the test is performed as follows: With the ignition key in the “OFF” position, the supply tank connected to “shop” air and regulated to between 100 and 101 psi, the parking brake disengaged, the service brakes adjusted to the manufacturer’s specifications, pneumatic pressure transducers “tee’d” into the service brake pressure hoses at the right front and right rear service chambers, with an accelerometer affixed to the service brake control, with the data acquisition system engaged, the driver applies the service brake as rapidly and forcefully as that person can. Upon each chamber reaching 95 psi the driver as rapidly as possible, removes their foot from the service brake control and after a few seconds, the digital acquisition system is disengaged. The supply tank is allowed to re-pressurize to just over 100 psi and the above repeated at least two more times for each condition.

For Data Sheet 17, Stability and Control at LLVW, “Apply Time” is the time from the first movement of the service brake control until the service brake control line pressure reaches 85 psi. (Note: Accelerometer affixed to the service brake control to detect first movement.)

Per OVSC and as an indicant test, a 20 mph stop was performed at the end of each stop sequence.